

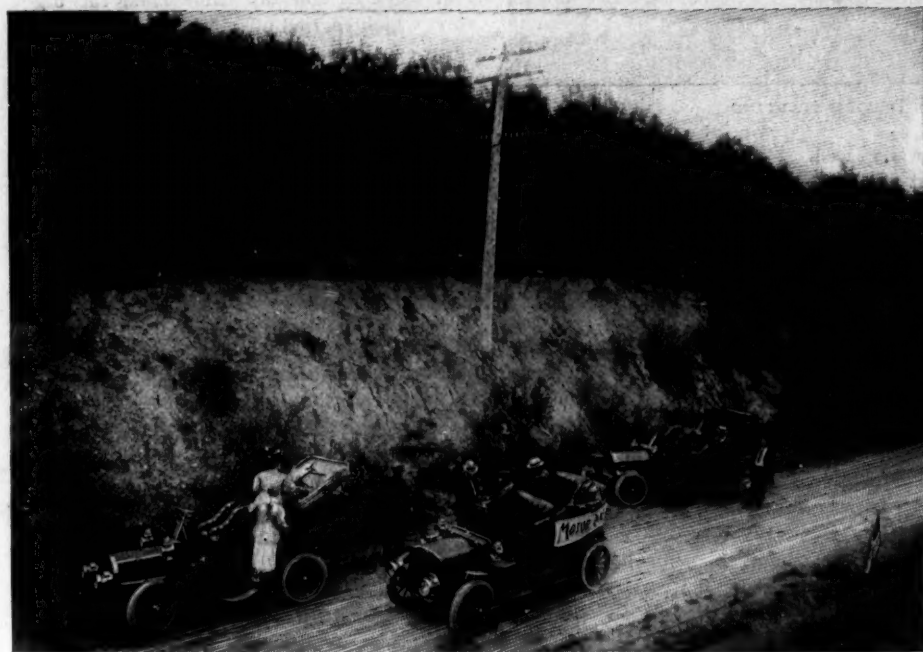
MOTOR AGE

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AIR-COOLERS ONE, TWO IN ECONOMY TEST



ON SUPERIOR BOULEVARD, WAITING TO BE RELEASED BY JUDGES' CAR

MINNEAPOLIS, Aug. 4.—The northwest's first economy test, held today over the Hopkins-Wayzata-Superior boulevard route, under the auspices of the Minneapolis Automobile Club, proved an unqualified success. Over twenty-five cars weighed in at the scales at Lake street and Hennepin avenue, and started over the designated route; and of the number twenty-three planted their finishing flags, and reported to the judges' car. Today's event was a 1-gallon contest, and its novelty and obvious utility aroused general interest among automobile owners of the Twin Cities. Computed on the basis of ton-mile performance, the first place in the awards was taken by an air-cooled Aerocar, owned and driven by Oscar Bergstrom. Weighing in at 3,100 pounds, including the weight of five passengers, the Aerocar traveled a distance of 22.9-10 miles on its single gallon of fuel, and scored an efficiency test of 35,990-2,000.

Following close upon the Aerocar, another air-cooled car, a Frayer-Miller entered and driven by W. C. Thornhill, scored

second, making 34,174-2,000 ton-miles. The Thornhill car weighed in at 3,170 pounds, carried five passengers, and covered exactly 22 miles, according to the odometer measurement of the judges' car. The seven awards were made as follows: First, Aerocar; second, Frayer-Miller; third, then Buick; Stevens-Duryea, Packard, Stoddard-Dayton and Autocar.

Competent judges, clerks and officials for all parts of the course prevented any misunderstandings or controversies, and the contestants exhibited the keenest interest in the trials, until the score sheet was completed, late tonight. But one steam entry was made, and that was withdrawn shortly after the start, in order that the car might be placed at the disposal of the judges. H. S. Haynes, whose Stoddard-Dayton figured in the prize-winning list, entered a White steamer, but the car was turned over to the judges, and became the official judges' car, as well as the Motor Age's representative in the event of the year in the northwest.

The start of the economy test was made

from the scales leased by the club, on Hennepin avenue, between Lake and Thirty-first streets. The route laid out with great care by officials of the automobile club, turned off from Hennepin at Thirty-first street, running west to Calhoun boulevard,

and then around the shores of Lake Calhoun, through the Minikahda club grounds, and on the main road to Hopkins. After passing through Hopkins, the route turned onto the main road to Wayzata. Through Minnetonka Mills and Wayzata the contestants drove, over an arm of Lake Minnetonka, and then onto Superior boulevard, the straight drive from the lake back to Minneapolis. The road was in excellent shape throughout its entire stretch. There was no sand whatever on any part of the course, and with the exception of a stretch



THE TRUCK STAYED OUT



WAITING TO BE WEIGHED IN BEFORE STARTING

of mud not over 2 rods long, where the boulevard runs close to the lake near Wayzata, the road was in perfect condition. As a result, there was little loss of fuel in bad running, and cars were given an opportunity to demonstrate their ability under the most favorable conditions.

The majority of the contestants reported at the club house, at Kenwood Parkway and Lyndale, shortly after 1 o'clock, and ran from there directly to the weighing-in scales. Here every provision had been made for draining the tanks, and gasoline was on hand, in sealed gallon cans, for delivery on the scales. Regulations provided that the feed can into which the test gallon was poured should be in plain sight of the observer, and every entry was adequately equipped. Each contestant was permitted to carry his own supply of fuel, in a tank in plain sight, for motive power at the end of the test, and no supply truck

was required. The first contestant was sent away promptly at 2 o'clock, and from then until 3:30 the cars were sent out as rapidly as their carbureters could be drained, weighed in and filled up. The first car over the course today started shortly after noon, going out to flag the route to be covered in the economy run. G. H. Seeley drove the flag car, and the course was marked off plainly. White flags were planted at every cross roads and turn, where the road continued straight ahead; while red flags signified turns. The flag car was followed by a confetti car, driven by C. C. Piper, which marked the road plainly wherever doubt might exist as to the course. The confetti served several times to keep cars on the course, where the intention of the flag was not clear. The care with which the course was marked prevented any mistakes on the part of contestants. The length of the course was nearly 30 miles, and the distances covered were in many cases surprising. The judges' car passed the club house, and went well onto the second round of the course before it picked up the Orient buckboard which scored the greatest run of the day—43.7 miles.

Dr. C. E. Dutton presided over the scales, as official weigher. Referee Asa Paine, R. J. Smith, S. M. Colburn and other officials had their hands full in getting the cars away through the crowd which blocked Hennepin avenue for nearly 2 hours. Cars were banked in the avenue for a great distance, and filled the surrounding streets, and great difficulty was experienced in keeping the street open for street car traffic.

Cars were required to weigh in with their full stock equipment, and were registered with the officials at a list price. Each car carried its full complement of passengers, one of whom was an official observer provided by the club. Flags carried by the observers were planted at the

end of each car's performance, and the cars were then shoved to one side of the road, and remained in their places until released by the judges' car. The day was singularly free from accidents of any kind, and the run proved to have all the features of an endurance contest. One car suffered a broken spring at the end of an 8-mile stretch; another lost 25 minutes through tire trouble; and a third experienced a delay of 15 minutes owing to carburetor trouble. Aside from these there were no accidents on the course.

Great distance work was expected of the light cars entered, and in the majority of cases they did not disappoint expectations. Every Franklin entered passed the club house on the first round; and the other light cars made excellent runs. But the real work of the day came from the big cars, which carried off all prizes, and made some excellent performances. Surprise was shown over the work of the 75-horsepower Kansas City machine, which with seven passengers weighed in at 4,640 pounds. The car had trouble shortly after the start through the refusal of the gasoline to feed down from the improvised feed tank, and some fuel was lost in an attempt to clear the pipe of obstructions. The big car made a run of 13 miles, however, and scored an efficiency test of 30 320-2,000, landing just outside the "money."

The Stoddard-Dayton, entered by H. S. Haynes, and the Packard, entered by L. H. Piper, were the two heaviest cars to get into the prize class. The Stoddard-Dayton covered 18.11 miles, with five passengers, and the Packard 17.6 miles with the same complement of passengers. The Buick, which took third place, weighed close to 3,000 pounds, and made a run of 22.19 miles before it stopped.

Cars were stalled on all parts of the road, when the judges' car finally reached the vicinity of Wayzata. The running had been excellent up to that point, and practically every tank held out for the run to Lake Minnetonka. Then the wayfarers began to show up, waiting for the odometer of the judges' car, and the checking sheets of Secretary Smith and Clerk-of-Course Colburn. Referee Asa Paine gave the



PUTTING IN OFFICIAL GALLON



EXAMINING THE TANK



FEED CAN IN PLAIN SIGHT

word for the release of the cars, and the judges' White steamer was followed into town by a string of automobiles.

The contest aroused considerable interest on the part of the public. It had been well exploited in the papers, but was little understood by the people; and the frequency of cars, apparently broken down, at the side of the road, gave pedestrians and drivers an opportunity to poke fun at the motorists. The route was kept well cleared of teams and of vehicles of all sorts, and for this reason practically every car had an opportunity to use every drop of its fuel for locomotion. The route through Hopkins and Minnetonka Mills furnished an occasional delay for the cars, owing to obstructions at railway crossings; but these were in no case such as to cause loss of distance to the cars.

Referee Asa Paine, Secretary Smith and other officials and members of the club generally, expressed entire satisfaction over the day's events. Nearly fifty cars were entered with the secretary for the test, but a dash of rain at noon kept out several of those who expected to make the trial. The rain threatened during the afternoon, but except for an occasional sprinkle, the weather was excellent. The economy test will certainly be followed by more extensive tests in the future.

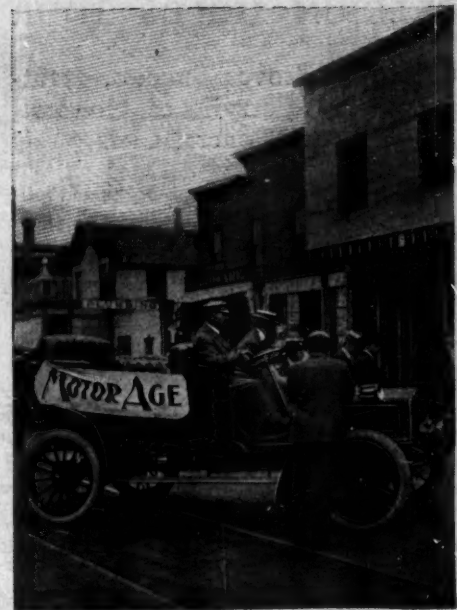
CHICAGO BILLS HILL CLIMB

Chicago, Aug. 6—A hill-climb for Chicagoans is a novelty in this section, which boasts of few grades steep enough to be dignified by the name of hill, yet the Chicago Automobile Trade Association thinks it has discovered at Algonquin an incline that will let local motorists test the abilities of their cars in this direction. At a meeting of the organization at the New Southern tonight it was decided to take up the proposition and run it off Thursday, September 6. Day after tomorrow the committee appointed to run the affair—Joseph F. Gunther, t^r Rambler branch manager; Walter L. Githens, the Oldsmobile and Stearns agent, and Thomas Hay, Ford's Chicago manager—will visit Algonquin and make plans for the event, which is second on the summer card of the trade association, but apparently not the last.

Algonquin is a little town some 10 or 12 miles the other side of Elgin and its hill is not much as hills go, but it is the best to be had around these diggings. It is about a quarter of a mile in length, but zig-zags in a way that makes it a miniature Crawford's Notch. It's steep enough, too, and those who have tackled it say there isn't a chance in the world for a car to go up on high and that to get up at all it will be necessary to rush it from the bottom. As the rough plans go, the hill-climbers will drive to Elgin the night before and lay over there for the night so as to be on the spot good and early the next day for the strenuous work.

The dealers went at this proposition with great glee, for they feel highly elated over the success of their reliability test over the Elgin-Aurora course on July 26. The fag-end of this affair was only cleaned up this afternoon when the judges had a final meeting and passed on six cases that had been brought to their attention. As a result two of the perfect-score cars were eliminated, but on the other hand two more were added, which leaves the total at thirty-four, the same as before. Frank Nutt, whose Haynes runabout had been soaked a point because of an adjustment of an oiler on the dash, made a kick, claiming the adjustment was perfectly legitimate and part of the operation of the car. The judges investigated and came to the conclusion Nutt was right in his statement, so they wiped out his debit and Nutt will get one of the foot-high bronze shields which will be given to the clean-score brigade in place of the cups which the committee had provided.

W. E. Crosswell, who drove a Reo touring car for Ralph Temple, pleaded for recognition. Crosswell's observer had lost his cards out of the car and couldn't stop to get them without bringing on a penalization, so an appeal was taken. The judges read the affidavits of the observers and then dipped Crosswell into the white-wash bucket. W. B. Grammer was not so



MOTOR AGE'S WHITE STEAMER

fortunate. His Thomas had been protested for an alleged stop on the Elgin hill, and in looking into the case the judges discovered irregularities in the report of the observer. One man had made the entire circuit and his card failed to show the car had been stopped. The stop was admitted, but it was claimed to have been caused by traffic interference. Failure to report this was one of the reasons for the disqualification.

Mrs. F. B. Draper, one of the two women with perfect scores, had been protested because one of her observers had ridden on two relays. This man, however, claimed he had been put back on the White steamer at Aurora because the officials there had no other observer for the job and the car had to leave. A protest had been made by the Premier people over the penalization of one Premier for a car stop and another for getting into Chicago ahead of time. The judges after an investigation refused to consider these kicks.

TABLE SHOWING RESULT OF MINNEAPOLIS 1-GALLON EFFICIENCY TEST

Make	H. P.	Tires	Contestant	Passengers	Weight	Miles	Ton-Miles*
Aerocar.....	24	Diamond.....	Oscar Bergstrom.....	5	3,100	22.9	35,900
Frayer-Miller.....	24	G & J.....	W. C. Thornhill.....	5	3,170	22	34,1740
Bulck.....	22	M. & W.....	A. C. Riddell.....	4	2,860	22.095	32,1637
Stevens-Duryea.....	20	Fisk.....	H. E. Pence.....	4	2,693	23.3	31,793
Packard.....	28	Continental.....	L. H. Piper.....	6	3,560	17.6	31,656
Stoddard-Dayton.....	30	M. & W.....	H. S. Haynes.....	5	3,360	19.055	31,328
Autocar.....	12	Fisk.....	H. E. Pence.....	2	1,830	33.6	30,1488
Kansas City.....	75	Fisk.....	G. Chandler.....	7	4,640	13	30,320
Franklin.....	12	Diamond.....	E. H. Moulton, Jr.....	2	1,670	34.055	28,1698
Rambler.....	16	Diamond.....	J. W. Pauly.....	5	2,760	20.45	28,442
Franklin.....	12	Fisk.....	Milton Brice.....	4	2,130	25.5	26,1899
Autocar.....	24	Fisk.....	H. A. Elwell.....	5	3,335	15.1	25,191
Franklin.....	12	Diamond.....	Gus Ringlung.....	2	1,730	26.8	25,364
Bulck.....	22	M. & W.....	C. W. Campbell.....	4	2,715	17.3	23,369
National.....	40	Diamond.....	M. E. Clark.....	5	3,930	11.5	22,1425
Franklin.....	12	Fisk.....	Horace Lowry.....	2	1,635	27.2	22,1018
Rambler.....	20	Diamond.....	L. H. Fawkes.....	5	2,930	15	22,700
Orient Buckboard.....	4	International.....	Maurice Wolf.....	2	900	48.7	19,1330
Maxwell.....	10	International.....	A. L. Norris.....	2	1,550	24.6	19,130
Jackson.....	20	G & J.....	A. A. Hanson.....	4	2,825	13.15	18,1148
Stoddard-Dayton.....	18	G & J.....	L. A. Biddell.....	2	1,930	18	17,740
Maxwell.....	10	International.....	H. B. Allen.....	2	1,450	23.2	16,1640
Northern.....	7½	Dunlop.....	Asa Paine.....	2	1,500	21.4	16,100

*Fractions in rows; as, 35,900 means 35 900/1000, ton-miles

BELGIUM HOLDS TOUR

Criterium Proves Success, Hautvast's Pipe Carrying off Honors in the General Class

Brussels, July 27.—The well-organized reliability tour, the Belgian criterium, has been brought to a successful close. Weather conditions were bad at first and improved later. Seventeen cars out of thirty-one starters finished. The lists were thus considerably thinned by the speed trial which decided the prizes. Of the fifty-one starters in the tour some forty-three finished, and of these forty-three thirty-one considered themselves fit for the speed test which came at the end of the tour.

The start was from Spa and the first day's run was to Nimegue, a distance of 115 miles, over winding roads well kept and in excellent condition. The next stage was from Nimegue to Cologne, a distance of 150 miles, while the third stage was from Cologne to Luxembourg, 130 miles. The fourth day's trip was from Luxembourg to Reims, 140 miles, while the final run was made from Reims to Dinant, 90 miles. At Dinant the start was made on the speed test after the leisurely tour of the preceding days and the test covered five laps around the country side. No effort was made to reach a definite settlement of penalizations until the speed test was finished and the final report of the result made.

The closest contests were between the Pipe of Hautvast and the Darraq of Croquet and the struggle between the two was not decided until the final stage. The Gobron trio and the two Fiats disputed every inch of the way in the fourth class with savage energy. In the fourth class the Deplus made a superb run and won the distinction of beating the time of almost all the cars in the big class only to meet with a breakdown at the finish. There was a struggle no less spirited between the little motors of the third class. The Belgian Pipe of Hautvast won the first place in the general class. The car was 50 horsepower and was fitted with Michelin tires.

The tour itself was most delightful and diversified, extending into five different countries—Belgium, Luxembourg, Holland, Germany and France. All sorts of roads and scenery were encountered. Every one appears to be satisfied with the conduct of the tour and the results have brought to

the fore the best qualities of the different series of cars. The classing of the competitors was made according to piston area. The Pipe, Gobron, Vivinus and Aries cars came out ahead in their series, respectively, whilst the Darraq, Fiat, Pipe, Martini, Aries and Gobron cars were all well placed in the final.

Spa, Cologne, Dinant, Luxembourg, and, in fact, all the towns through which the cars passed were en fete and proved themselves very enthusiastic over the affair. In fact the whole trip was a glorious success and one of which Belgium may be proud. The Belgian, Namur and Luxembourg clubs, with the help of the press syndicate, organized the tour, and its results will be such that the fair play and sportsmanlike behavior of the authorities will recommend the event to all true lovers



THE CRITERIUM—VIEW AT THE START AT SPA

of international events in the automobile world. The criterium for next year ought to be a red letter event.

SELDEN'S LATEST IDEA

Buffalo, Aug. 6.—George B. Selden has perfected at Cortland, N. Y., a device which, according to the inventor, promises to revolutionize the automobile industry of the world. It is based on the idea that Mr. Selden has been working upon for several months—that is, automobiles operated by every-day kerosene oil, and the vehicle to be sold at a price not exceeding \$500. Mr. Selden, who lives in Rochester, says the device will make automobiles so cheap and the cost of operation so trifling that a man will feel he cannot longer afford to keep a horse. Plans are now being made for the incorporation of a company to manufacture, the proposed plant to be located some place near Buffalo. Mr. Selden did not go into details as to his method of converting kerosene into fuel for internal combustion motors, but will later.

SHOW FOR DECEMBER

A. C. A. and Independents Name Early Date and Select Grand Central Palace for Place

New York, Aug. 7.—New York will have a December show. It will be open to the world. The Automobile Club of America will promote it with the American Motor Car Manufacturers' Association as a co-operator. The deal was finally closed yesterday at a meeting of the committee of management of the latter at its offices at 29 West Forty-second street, this city, which was attended by Benjamin Briscoe, of the Maxwell-Briscoe Motor Car Co.; William Mitchell Lewis, of the Mitchell Motor Car Co.; H. H. Rice, of the Nor-

dyke & Marmon Co.; and Charles E. Duryea, of the Duryea Power Co. The show will be held in the Grand Central palace, a monster building covering a block facing on Lexington avenue, between Forty-third and Forty-fourth streets, which has been leased for the purpose from December 1 to 8. The A. C. A. show committee, which consists of General George Moore Smith, chairman; Alan R. Hawley, George P. Butler and S. M. Butler, will manage the exhibition in coöperation with Alfred Reeves, the new general manager of the A. M. C. M. A.

The ground and second floors of the palace, with 35,000 square feet and 25,000 square feet, respectively, will be used for the show. The A. M. C. M. A. has secured 25,000 square feet for the use of its members, which, both present and prospective, will get space under advantageous terms. The profits of the show will go one-half to the club's show fund and the other half will be rebated to the exhibitors. The Grand Central palace once housed a great exhibition of bicycles in the heyday of wheeling and in the year 1900 a free lance automobile show was run there following the A. C. A.'s exhibition at Madison Square garden. The building itself is well adapted to trade exhibitions on a large scale. As the area above quoted indicates, there is vast space on the first floor. The center of the second floor is cut out, making an imposing foyer surrounded by galleries and lending itself well to a central scheme of decoration. There are office, committee, dressing and retiring rooms in abundance. The club and independents, it will be remembered, combined in holding a show at the

Sixty-ninth Regiment armory last January during the same week as that held by the A. L. A. M. at Madison Square garden. The armory was incomplete and entailed a heavy expense on the promoters. Following the holding of the armory show, the New York state authorities issued an edict forbidding the use of armories for such purposes. It was suggested in view of this and believed that the club and independents would be forced to the expedient of an open-air show or go out of the show business entirely. The success of the attempt of the New York Trade Association, however, to solve the show problem and inaugurate a novelty by its promotion of an open-air exhibition at the Empire City track was not such as to encourage much further consideration of this solution of the predicament of the club and independent makers. Secretary Butler and Al Reeves, however, are resourceful and seem to have proved equal to the emergency.

The break made for earlier show holding is panning out a popular move with the local dealers, both licensed and independent, who see in it all the year round business through the closing of the gap between the late autumn and early spring selling seasons. The licensed dealers frankly express the hope that this independent move will compel the A. L. A. M. to follow suit and place them on an equally advantageous footing with the independents. The public has viewed the news with favor, believing December shows will assure prompt deliveries in the early spring and do away with waits until midsummer for their cars by practically setting production forward 2 months. In this connection Motor Age's editorial proved timely and met with marked approval both by the trade and the public.

BAY STATE TOUR A SUCCESS

Boston, Aug. 6—The tour of the Bay State Automobile Association, which started for the White mountains on Thursday, July 26, and concluded on Friday, August 3, was a success in every respect. Nothing but words of commendation and praise were heard as to the conduct of the Bay State Automobile Association tour. Capital quarters were prepared all along the route at moderate prices and instead of being in the nature of a rush, the tour was made leisurely and made with comfort. The club was entertained most royally on its return journey at Portland, Me., by the Maine Automobile Club.

INSIDE HIS OLD MARK

L. L. Whitman, After Transcontinental Record in Franklin, Reaches Ogden, Utah

Ogden, Utah, Aug. 6—L. L. Whitman, accompanied by C. Carris, driving a six-cylinder type H Franklin, arrived here tonight on his way east in an effort to break his own transcontinental record of 33 days. At this point he was 6 days inside his 1904 mark and believes he will make Chicago by Friday if the weather stays good. Whitman left San Francisco August 2 and carries a letter from San Francisco's mayor to the people of New York, to be presented to them through the mayor of New York city. Mayor E. E. Schmitz, of

There is also furnished an ax with which to cut away obstructions on the mountain roads; a large sized revolver as protection for the men in crossing the plains and a compass as a guide. These complete the touring outfit. Each man has been provided with a khaki suit, a helmet as protection from the severe heat of the desert sun and a canteen.

Since 1904 no one has been successful in lowering the San Francisco-New York record made by the Franklin 10-horsepower car in 33 days. And this will be the longest trip of its character ever made by a large, high-powered air-cooled machine. The route in general follows the Southern Pacific railroad over the Sierra Nevada mountains, reaching the altitude of 7,260 feet, across 600 miles of desert sands to Ogden; the Union Pacific railroad, over the

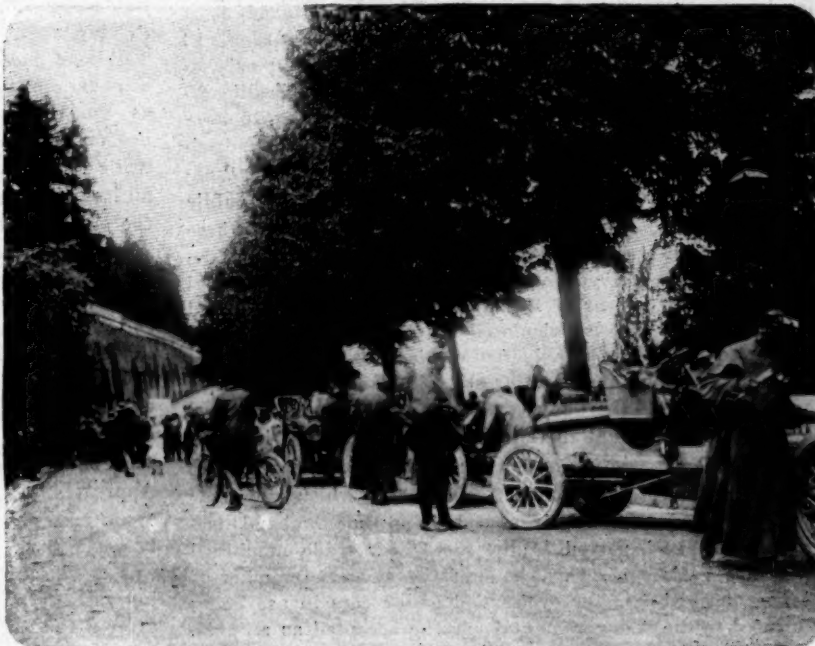
Rocky mountains, reaching an altitude of 8,000 feet, down the Platte river valley, through Cheyenne and into Omaha; the Chicago & Northwestern railroad, across Iowa, through Marshalltown and Cedar Rapids and across Illinois into Chicago; the Lake Shore and New York Central lines through South Bend, Toledo, Cleveland, Erie, Buffalo, Syracuse, Albany and on to New York. The entire length of the trip as covered by the car will be between 3,500 and 4,000 miles.

A comparison of the previous transcontinental trips in this connection makes interesting reading. The first attempt at a record trip to cross the continent in

an automobile was made in 1903 by Dr. Jackson, of Vermont, who covered the distance in 64 days, in a Winton. Tom Fetch then followed in a Packard, the same year, and made the trip in 61 days. The third man to start was L. L. Whitman, who covered the distance in an Oldsmobile in 72 days. In 1904 Whitman made his great record of 33 days in a 10-horsepower Franklin two-cylinder car.

TRUCKMEN ROAD HOGS

Buffalo, Aug. 6—The other side of the story is told by local motorists who protest against being prosecuted for alleged violations of the speed ordinances while the truck drivers ignore the law and are unmolested. One said: "There is a city ordinance as well as a state law which requires heavy, slow-moving trucks, vans or other similar vehicles to travel on the right-hand side of the street next to the curb, and another law compelling any overtaking carriage, automobile or other rig in passing to go to the left."



THE CRITERION—CARS ARRIVING AT THE LUXEMBOURG CONTROL

San Francisco, deemed it a particularly opportune way by which to send his greetings to a people and state that responded so quickly and nobly at the moment of his city's great distress; appropriate because the automobile was the one means of travel and communication that survived the fire and earthquake and made relief work possible and effective.

Whitman's Franklin is a regular stock machine, fitted up as a runabout. In the hamper are carried half a dozen extra inner tubes, extra cans of gasoline and oil, together with a few small parts which might be required in making repairs on the car. A steamer trunk intended for the men's clothing, blankets to protect them from the cold at night, rubber ponchos to ward off rain and wet, is carried back of the seats on top of the hamper. The car is fitted with a dash searchlight in addition to the regular lamp equipment, and is also provided with two stout hickory sticks, which, crossing the deserts, are often necessary in prying the car out of the sand.

MOTOR QUIZ AT AN END

English Commission Recommends Parliament to Abolish 20-Mile an Hour Speed Limit

London, July 28—The report of the royal commission of motor cars, which was constituted at the beginning of September last, was placed before the houses of parliament on Wednesday afternoon and has been the subject of probably the most widespread press comment and criticism that any similar report of recent years has evoked in this country. Appended to the report are the recommendations which the committee place before the king for acceptance. This, practically interpreted, means suggestions which are placed before the house of commons for incorporation in the fresh motor car act which is promised for next year. The principal features are: The abolition of the present 20 miles an hour limit and the practical substitution for it of an ordinance handing over to local authorities the power to publish or erect certain forms of warning boards intended to mark out areas or stretches of road inside which a 12 miles per hour limit of speed shall be obligatory and any infringement of which shall be punishable.

The speed of heavy motor traction vehicles weighing from 2 to 3 tons and having non-resilient tires to be reduced to 5 miles an hour.

That it should be obligatory on a motorist who has been involved in an accident or collision to stop and render assistance or give such information as may be required with a view to further investigation.

The taxation of motor cars should be on a sliding scale calculated from a basis of the weight and all revenue derived from this taxation should be devoted to the improvement of roads through a central department having the power to make allocations to district authorities.

Larger identification plates, the necessity to carry two headlights on all cars and the alteration of the lamp lighting time from an hour to half an hour after sunset and before sunrise all the year.

Further recommendations are for the simplification of identification marks of manufacturers' cars, powers to retain removal of visual obstructions in rural highways which have led to collisions in the past, extended facilities to enable the public to obtain the name and address of motor cars, the power to assess traction motors for extraordinary damage done to highways and the endorsement of licenses at the discretion of the court, together with the right of appeal against endorsement or fine which exceeds 40 cents.

That public opinion will view with equanimity the present recommendation is scarcely possible, and, everything considered, it will be a great surprise if the house of commons accepts this portion of the recommendation, despite the fact that

the 12-mile limit regulation provides a very important safeguard such as will appeal to every town dweller at least. Indeed, motorists regard this 12-mile limit as somewhat like taking the gilt off the gingerbread.

With regard to the dust nuisance the commission does not feel impelled to offer any direct recommendation. It admits that the evidence put before them went to show that the dust nuisance was practically proportionate to the speed and size of the car. At the same time the commission refuses to adopt the suggestion that fines levied upon motorists for infraction of any of the provisions of the act should be similarly devoted, holding that infractions of the law by motorists should not be specially dealt with any more than infractions of any other class of the community.

The new scheme of taxation suggested is that motor cycles should be taxed \$5 a year; motor cars weighing, unladen, 12 hundredweight and under, \$10.50; exceeding 12 hundredweight but not exceeding 15 hundredweight, \$15.50; exceeding 15 hundredweight but not exceeding 25 hundredweight, \$26; and exceeding 25 hundredweight, \$42 per year. Trade and public service vehicles to pay one-half of these rates. It is stated that the revenue derived from motor taxation in the financial year of 1905-1906 was about \$500,000, and it is calculated that the new scheme will greatly increase this sum.

Some interesting information is given in the body of the report. Thus it is stated that in October, 1905, the capital invested in the motor car industry of Great Britain was almost \$25,000,000, "which has since greatly increased," and that the hands employed in the motor car trade numbered 17,000. The statistics as to the number of motor cycles and motor cars in use being governmental may be accepted as reliable. This shows that on September 30, 1905, there were 37,665 motor cycles and 36,373 motor cars, a total of 74,038, whereas on May 1, 1906, there were 42,438 motor cycles and 44,098 motor cars, a total of 86,536 in the kingdom.

TALK TRADE SECRETS

Detroit, Mich., Aug. 5—The recent meeting of the engineers of the Licensed Association of Automobile Manufacturers which recently favored the city with its presence had for its feature the presence of Henry Souther, the engineer in charge of the licensed association's experimental laboratory at Hartford. This establishment has been conducting a systematic campaign this year along the line of valve timing and indicator cards and the result of Mr. Southard's investigations were given in exhaustive form to the members of the test committee, composed of Messrs. Maxim, Riker, Coffin, Wilkinson, King and Secretary Clarkson. This committee held sessions in the afternoon and evening, the afternoon session being devoted to a conference on next year's tire setting.

HUFF IN A RUSH TRIP

Packard Designer Takes 1907 Run-about Through from Detroit to New York in Jig Time

New York, Aug. 7—Last night there finished here a rush tour from Detroit, in which the first of the new Packard 30 runabouts was driven from the factory to New York by Russell Huff, designer of the Packard company. All of the possibilities of travel were encountered on account of the differences in roads and the running into sections that had been soaked with rain for days, yet the run of 778 miles was made in 3 days.

The trip started Saturday morning and that day ended at Buffalo, over hard but rough Canadian roads. Some are good, but many are badly worn out and fast driving is a sequence of thank-e-mams. The road is easy to follow, being for a considerable distance over what is known as the Governor's highway. There are not many hills, but there are teams, but while the Canadian horses seem less familiar with automobiles than do those of the states, and their drivers likewise, the latter are more good-natured than United States farmers. The road for the most part was covered with white dust that rolled up in a heavy bank which hung in the air for a half mile back of the car.

The trip was continued from Buffalo, over the Rochester road, which for several miles out is superb macadam. Then, of a sudden, the macadam ended in clay. Approaching Rochester the macadam again coaxed the car into a fast gait, but between Rochester and Syracuse the road was a winding path, crossing and recrossing railway and canal. East of Syracuse, after a few miles of better road, the scene of a recent heavy storm was encountered and the riding became slipping around over greasy ruts and dropping into the sucking mud of soggy lowlands. Once, at the approach of a new bridge, where it was necessary to cut across a field to reach the road on the other side, the car suddenly dropped to the axles in a bog disguised in a heavy growth of weed and grass. To extricate it required over an hour, but it was finally accomplished by engine power after a lot of shoveling with old boards.

From Canastota to New York there was not a dry inch. The whole country was soaked. The only good going was on the occasional stretches where well graded macadam had shed the water and left the only danger in a greasy surface tending to skids. Not until within 40 miles of New York did the road allow speeding.

The only accident to the car was the bending out of shape of the right rear mud guard by being caught in a loose tire chain. There was no tire trouble on the trip, but one rear tire was worn to the last layer of fabric. An interesting

feature of the run, relating to its original purpose of testing, was that the whole distance was covered without a fan, in order to ascertain the efficiency of the water-circulating system under trying conditions. The car was fitted with a new pressure gasoline feed, the gasoline tank being hung lower than on the regular touring car. The system gave no trouble and after the car had been standing 12 hours the gauge showed the normal running pressure.

ITALY IN AN UPROAR

Milan, July 27—The indefinite postponement of the Brescia circuit for 1906 has caused trouble. Everything was going forward with the utmost precision and regularity for the September 2 event, money had been lavishly expended in road repairs and getting the circuit ready for the race, when the government decision that no troops can be loaned for keeping the public order was made. No reason has been given for this curious decision, nor can it be imagined that a country which maintains a large standing army could find any great difficulty in complying with the request for troops to safeguard the public on such an occasion as a great international automobile event. Without troops to guard the 60-mile circuit, nothing can be done in the way of a speed contest in view of the danger lurking around each curve in the shape of persons, animals or any other obstruction. Everyone in the automobile world in Italy is wrought up. The government even is divided against itself in the matter and the agricultural minister has written cordially to the war minister to get a revocation of the decision. Chevalier de Florio, the originator and supporter of the race, returning from Paris, has taken the matter calmly and admits he is beaten this year.

BEACH RACING

New York, Aug. 7—Beach racing is becoming most popular at the eastern resorts this summer. There was a meet at Long Beach, L. I., Saturday and another at Newport yesterday. At the former place the races were at 1 mile, the feature event being a race for women which was won by Miss Emily Potter, niece of Bishop Potter, who drove a 40-horsepower Peerless, beating her sister, Miss Dorathea Potter, in a 28-horsepower Oldsmobile. Mrs. Peter Smith, in a 12-horsepower Franklin, was third. Stanley Martin, in an 8-horsepower Oldsmobile, won the event for "one lungers," and C. A. Hudson, 28-horsepower Oldsmobile, took the race for cars listing under \$2,500. In the big class Tom Cooper, in a Matheson, won from Jack Rutherford, Peerless. At Newport, E. L. Baron, of Providence, was first in the two-cylinder class, driving a 10-horsepower Ford. B. F. Blackington, 24-horsepower Stanley, captured the stock car contest and the invitation match race went to J. E. Pugh, 28-horsepower Queen.

ALTER ROUTE OF TOUR

Australia's 1,000-Mile Reliability Run To Be Over the Victorian Roads in November

Sydney, Australia, June 24—The Glidden tour of Australia, the 1,000-mile reliability test promoted by the Dunlop Rubber Co., will have a new route this year, the promoters having decided that the Melbourne-Sydney course is too wretched for such an important contest. Therefore, the tourists this year will follow the Victorian roads, the dates selected being from November 12 to 17, inclusive, and the total distance being 1,007 miles.

The classification of cars will be as follows: Class A, single cylinder cars. Class B, multi-cylinder cars with a cylinder capacity of not more than 130 cubic inches equivalent approximately to 13 horsepower. Class C, multi-cylinder cars, with a cylinder capacity of not more than 200 cubic inches, approximately 20 horsepower, and Class D, multi-cylinder cars, with a cylinder capacity of over 200 cubic inches, approximately over 20 horsepower. The route and speed averages for each day's run will be as follows:

Monday, November 12: Melbourne to Hamilton, 202 miles, via Geelong, Colac, Camperdown, Terang and Mortlake. Roads good except from Werribee to Geelong. A compulsory stop of 30 minutes for lunch will be made at Camperdown. Speed averages: Class A, 17 miles an hour. Class B, 20 miles an hour. Class C, 23 miles an hour. Class D, 25 miles an hour.

Tuesday, November 13: Hamilton to Melbourne, 181 miles, via Dunkeld, Lake Bolac, Ballarat and Bacchus Marsh. Lunch at Ballarat. Good roads. Speed averages: Class A, 16 miles an hour. Class B, 19 miles an hour. Class C, 23 miles an hour. Class D, 25 miles an hour.

Wednesday, November 14: Melbourne to Tallarook and back, 108 miles. Roads good. Speed averages: Class A, 16 miles an hour. Class B, 20 miles an hour. Class C, 23 miles an hour. Class D, 25 miles an hour.

Thursday, November 15: Melbourne to Stawell, 176½ miles, via Woodend, Malmesbury, Daylesford, Ballarat and Ararat. Good roads. Lunch Ballarat. Speed averages: Class A, 16 miles an hour. Class B, 20 miles an hour. Class C, 23 miles an hour. Class D, 25 miles an hour.

Friday, November 16: Stawell to Melbourne, 212½ miles, via Ararat, Lake Bolac, Mortlake, Cressy and Geelong. Roads good, excepting Geelong to Werribee. Lunch Mortlake. Speed averages: Class A, 17 miles an hour. Class B, 20 miles an hour. Class C, 23 miles an hour. Class D, 25 miles an hour.

Saturday, November 17: Melbourne to Marysville and back, 127 miles, via Kangaroo Grounds, Yarra Glen, Healesville and Black Spur. Speed averages: Class A, 14 miles an hour. Class B, 16 miles an hour. Class C, 18 miles an hour. Class D, 20 miles an hour.

The competition to be a non-engine stop run from start to finish, excepting compulsory stops of 30 minutes on four specified days for lunch. An observer to be carried aboard each car with a view of the proper carrying out of the non-stop and non-adjustment conditions. One thousand points will be credited at the start of the trial to each competitor. The winner to be the contestant left with the highest number of points at the end of 6 days' contest. At the finish of each day's run no repairs or adjustments will be allowed to the car excepting tire repairs, even when contestant is well within his driving time

allowance. If any repair or adjustment is effected in control, the competitor will be penalized with loss of points, the same as for repairs on road. Gasoline, oil and water tanks will be refilled at the end of each day's run under observer's supervision. Necessary oiling will also be permitted. Cars to be garaged and locked up each night under official control, no handling being allowed.

Cars will be turned over to contestants 5 minutes before their starting time each morning. During this time allowance, any necessary adjustments, but not repairs, may be effected under observer's supervision. Changing or removing sparking plugs will be permitted, but substitution of any part of car, except where specified, will not be allowed during 5 minutes' grace. Any such replacements to be penalized according to penalty schedule. Points will be debited against competitors for engine stops as follows:

Class A: One point per minute or every part thereof.

Class B: Two points per minute or every part thereof.

Class C: Three points per minute or every part thereof.

Class D: Four points per minute or every part thereof.

Similar penalties will be enforced in their respective classes for every minute or part thereof that time allowance is exceeded on every day's run, but no benefits are derived from early arrival at each day's destination.

Car stops for tire trouble will not be penalized, but count against contestants' time allowance. The engine must be kept running during any such repair, and no adjustments made.

The schedule of penalties, in addition to points lost on account of duration of engine stop, is as follows: Steering gear trouble, or broken axle or wheel, 100 points; bent axle, 20 points; broken car spring or changing coil, 15 points; fractured gasoline, oil, induction, water, or exhaust pipe, 10 points; substitution of any part of motor or driving mechanism, 10 points; broken fan belt or chain, or replacing same, 3 points; changing sparking plug on road, 2 points; tightening up any nut or using spanner or any tool on any part of car excepting for tire repairs or necessary brake adjustments, even if engine is kept running, 2 points.

FOR CRUDE PETROLEUM

Paris, July 27—"Petrol lampant" is the French term for crude petroleum oil and the French minister of the marine has organized, through the French automobile club, a concours for motors which can use this kind of fuel in place of gasoline or denatured alcohol. Considerable use for this kind of a motor is foreseen on small craft along the coasts, or for launches carried by warships, river boats, etc., as well as for stationary engines. The French government wishes to get a good motor which will burn petroleum unrefined to any extent and to this end is examining the motors.



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CHANGES NEEDED IN GLIDDEN TOUR



HERE is much to be said both for and against the 1906 Glidden tour; in some respects it was more than might have been expected and in other respects it was full of shortcomings. There has been but faint praise from any save those who succeeded in gaining perfect scores, and even the perfect-score men are by no means unanimous in expressing entire approval of the rules and the management. It is true it was no light task to engineer such a contest and satisfy or come anywhere near satisfying the three hundred people taking part in one capacity or another; nor was there any expectation that such would be the outcome. It seems to be the general belief—and Motor Age shares in this belief—that the management not only meant to deal fairly in all respects but endeavored to do so, wild statements to the contrary notwithstanding. The fact remains, however, that the rules as laid down were not what should have been made and were not carried out as might have been expected. They were either wrong on the start or they would not have been changed en route.

It is true mistakes can be discovered after an event far better than before, and it is by no means astonishing that some errors in judgment should have cropped out, not only in the making of the rules but in the carrying out of the rules and in the general conduct of the tour as well. The men responsible for the rules formulated and partially carried out have had sufficient experience in conducting such affairs as to be expected to avoid at least many of the errors that were made. If the tour was designed to illustrate the reliability of the automobile it fell far short of what was expected, though reliability was demonstrated in a general way. To permit repairs and adjustments on the road, regardless of what these repairs and adjustments may have been, meant not reliability but a test of the alertness of a driver to effect repairs and ability to drive a car from one checking station to another in the fastest time consistent with

the elements of safety and regard for laws.

The human being learns by contact with people; one must often go away from home to gather ideas. All the tests that have been run in this country have been patterned largely after some foreign affair, with changes here and there to fit the case. We have improved on the ideas of Europe and these improvements have been in turn improved upon. Far-away Australia comes to the front with ideas that, so far as both the United States and Europe are concerned, are new in many respects, notwithstanding that country's comparative inexperience in promoting automobile events. It is now promoting a reliability test, the rules of which have more originality and common sense in their makeup than the Glidden tour rules or the rules of similar contests. They have been formulated with the view of demonstrating a motor car's reliability, but in making the rules the limitations of cars and drivers have been taken into consideration by those responsible for their existence.

SIMPLICITY APPARENTLY NOT THE OBJECTIVE



UTOMOBILE makers, in the fierce battle of competition, are rapidly departing from simplicity in design and equipment, an essential thing as most people look at designing. There does not seem to be any particular reason for this regrettable departure except the desire to give all that can be afforded for a stipulated amount of money. The simple car is the car of the future, as only a very few years will show, and the maker who will begin on the policy of extreme simplicity will have his reward in an ever increasing business and possibly small but satisfactory and steady profits. There are today many cars with so many complicated parts and numerous pieces as to not only bewilder the buyer and operator but to make repairs more necessary and more costly, thus placing the automobile outside the reach of the average man. It must not be taken that many of the things found on

It is an unreasonable proposition to say that a car shall not be washed or the machinery cleaned; it is unreasonable to compel contestants to fill lubricators and fuel tanks on their own time; and it is just as unreasonable to permit a contestant to make adjustments, to replace broken parts and to do other mechanical work even on his own time. If a car is to show reliability it should not be tinkered with except under penalty. It should be cleaned and oiled and supplied with fuel and these acts would in no wise detract from the reliability that might be displayed. A car that has to have a new axle, a new spring, a new valve and other new parts does not show itself to be thoroughly reliable. The car that happens to pass over a sharp stone or nail to the injury of the tire has nothing against it from a mechanical point of view. The tire question should be eliminated entirely or made a contest of itself and by itself.

The next Glidden tour should be conducted on far different lines than those laid down for 1906, else it will find itself short of participants. The Australian reliability rules form a good groundwork for the Glidden tour committee to work on and with some modifications may be made practically satisfactory to all. These call for an observer for each car, an idea by no means new but by all means essential if the public is to know absolutely what the cars are doing and how well they are standing the strain of such a contest. Such an affair is for the purpose of showing the public what a car can do; if such were not the case the makers would not have taken the interest in it they did. They look upon it as a means of bringing the good qualities of their cars before the public, and if this is the case the prospective purchaser has the right to know all that takes place, on the road and elsewhere.

the modern car are absolutely useless—nearly all are of some use or of more or less convenience to the owner or operator—but they are by no means absolutely necessary to the average man. The present-day design of the motor car does not tend toward extreme simplicity, except in a few cases. The simple car will not only be the car for the masses but will be easier to make, more satisfactory to sell and more sensible for the ordinary man to use. The car with all the modern conveniences will always have its place with a share of the public, but it cannot be the car for the individual who, through force of circumstances, is compelled to be his own driver, chauffeur and mechanic. A man so situated wants a simple car—the simplest that can be made—and such a car will prove so popular as to bring sufficient credit and remuneration to its maker. A golden opportunity awaits some bold manufacturer of a simple car.

British motorists will find they have jumped from the frying pan into the fire over the new motor car act.

Mr. Glidden probably didn't think he could stir up such a rumpus and consequently ought to be proud of his job.

It was only a little time ago that Barney Oldfield thought track racing would be in quite as full swing as it was a couple of years ago—and maybe it is, with Barney's own close company.

The quietude that seems to prevail in eastern motoring circles is probably occasioned by the after effects of the Glidden tour and a desire to store up a little energy for the sensation the Vanderbilt cup race will create.

The postponement of the Brescia circuit seems to have stirred up all Italy, not excepting the government. What would an American think if the Vanderbilt cup race were to be postponed and the federal government should put up a howl of protest over the action?

Chicago made up a set of rules in an evening, ran the biggest test of the year and did it all with as little fuss as if it were an every-day occurrence. In this respect the Chicago affair differed from the Glidden tour and there was a whole lot less kicking among the contestants at that. But it should not be inferred there was no kicking whatever—there was.

WEEK IN BRIEF

England's royal commission reports to parliament on motor car act, recommending that 20 miles an hour speed limit be abolished and giving local authorities right to regulate pace.

Automobile Club of America and independents again combine to promote show, deciding to hold it the week of December 1 to 8 in the Grand Central palace.

Australians change course of annual 1,000-mile reliability run, deciding to fight for Dunlop trophy over Victorian roads; stringent rules adopted.

Minneapolis Automobile Club holds 1-gallon economy test, twenty-three cars competing, Aerocar winning first prize and Frayer-Miller second.

Chicago Automobile Trade Association decides to hold hill-climb at Algonquin, Ill., September 6; protests in reliability tour settled.

Russell Huff, designer for Packard company, makes quick run from Detroit to New York to try out 1907 car.

George B. Selden reported to be working on kerosene car to sell for \$500.

Italy in an uproar because Florio cup race is called off; riots occur.

NOVEL, AT LEAST

The Venango Citizen-Press, of Venango, Pa., is the latest advocate of nonsensical automobile restrictions. It seriously proposes that the driving of motor vehicles over the country roads be restricted to certain days in each week. One of the days it proposes to compel automobilists to remain indoors is evidently Sunday, for it says that "the property owners who are taxed to make and maintain the roads might then have a chance to get to church, market or mill without risking their lives to the speeding machines." Cut out Friday and Saturday for going to and returning from market, and Wednesday for going to mill, and by the process of elimination it may be arrived at that the Citizen-Press would hand over the roads on Monday, Tuesday and Thursday for the exclusive use of automobiles—a proposition which the farmers, it is to be feared, would not greet with enthusiasm.

Now it is post Glidden and ante Vanderbilt.

Minneapolis deserves a place on the motor map, even if it had a skidooful of finishes.

Whitman is after what little transcontinental printers' ink Megargel let get away from him, only he likes the six-cylinder brand.

Two beach meets were held in the east recently and Senator Morgan didn't have a hand in either of them. Claim for record has been made.

Maybe the A. C. A.-independents show is being held early in December to give the really rich a good chance to select their Christmas presents.

The row the Italians are kicking up over the cancellation of the Florio race reminds one of what happens when you take candy away from children.

Anybody who has been up against the motoring laws of Missouri is naturally pretty glad he isn't from that state. For the point, read the page devoted to legal affairs in this issue of Motor Age.

Now George B. Selden comes out with the announcement that he is to market a \$500 car which is to use kerosene as fuel. Does the A. L. A. M. get in on this or will its members simply keep on paying royalties?

The automobile scorcher may see the handwriting on the wall if he will but look. The French chamber, while it voted a general amnesty, refused to let the scorcher off. See the point, Mr. Scorcher!

It is declared that great highway from New York to Chicago is coming, after all. And so is Christmas.

Evidently Chicago can't be beaten, for it is to have a parts show next month, thus setting the fall show example.

With so many ties on perfect scores in the Glidden tour and the Chicago reliability contest, the medal makers will find profitable jobs, while the cup makers will have to look elsewhere for business.

The British haven't much of which to boast in the automobile line. There are only 45,490 pleasure cars in use in the United Kingdom, a mere nothing compared with the figures the United States can show.

A year ago predictions were made that the automobile industry would see a wholesale lot of failures, but up to date there seems to be no hope of a realization of the forecast. The pessimistic may console themselves by declaring: "Just wait awhile and see."

If the American Automobile Association doesn't do better running the Vanderbilt cup race than it did in the management of the Glidden tour, it will have such a howl on its hands as to compel it to go out of the contest business entirely. As a matter of fact, it might find something else to do that would prove of material benefit to motorists.

COMING EVENTS

August 5-8—Touring car competition, France.

August 9—Orphans' day, Rochester Automobile Club, Rochester, N. Y.

August 9-12—Malchamps hill climb tests, France.

August 13—Circuit des Ardennes, Belgium.

August 15-16—Ventoux automobile meeting, France.

August 18—Liederkerke cup race.

September 1-8—Canada International exhibition, St. John, New Brunswick.

September 1-10—Auvergne cup competition, France.

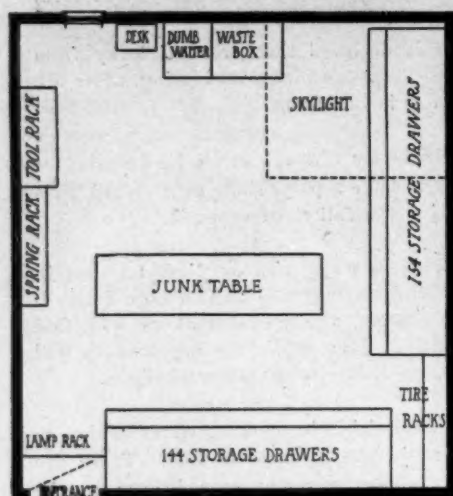
September 2—100-mile road race for touring cars at Rochester, N. Y., Rochester Automobile Club and New York Automobile Association.

September 6—Hill climb at Algonquin, Ill., Chicago Automobile Trade Association.

September 9-20—Automobile meet of Pallenza, Italy.

September 15-16—Mount Ventoux hill climbing competition, France.

A MODEL MOTOR CAR STOCK ROOM



FLOOR PLAN OF STOCK ROOM

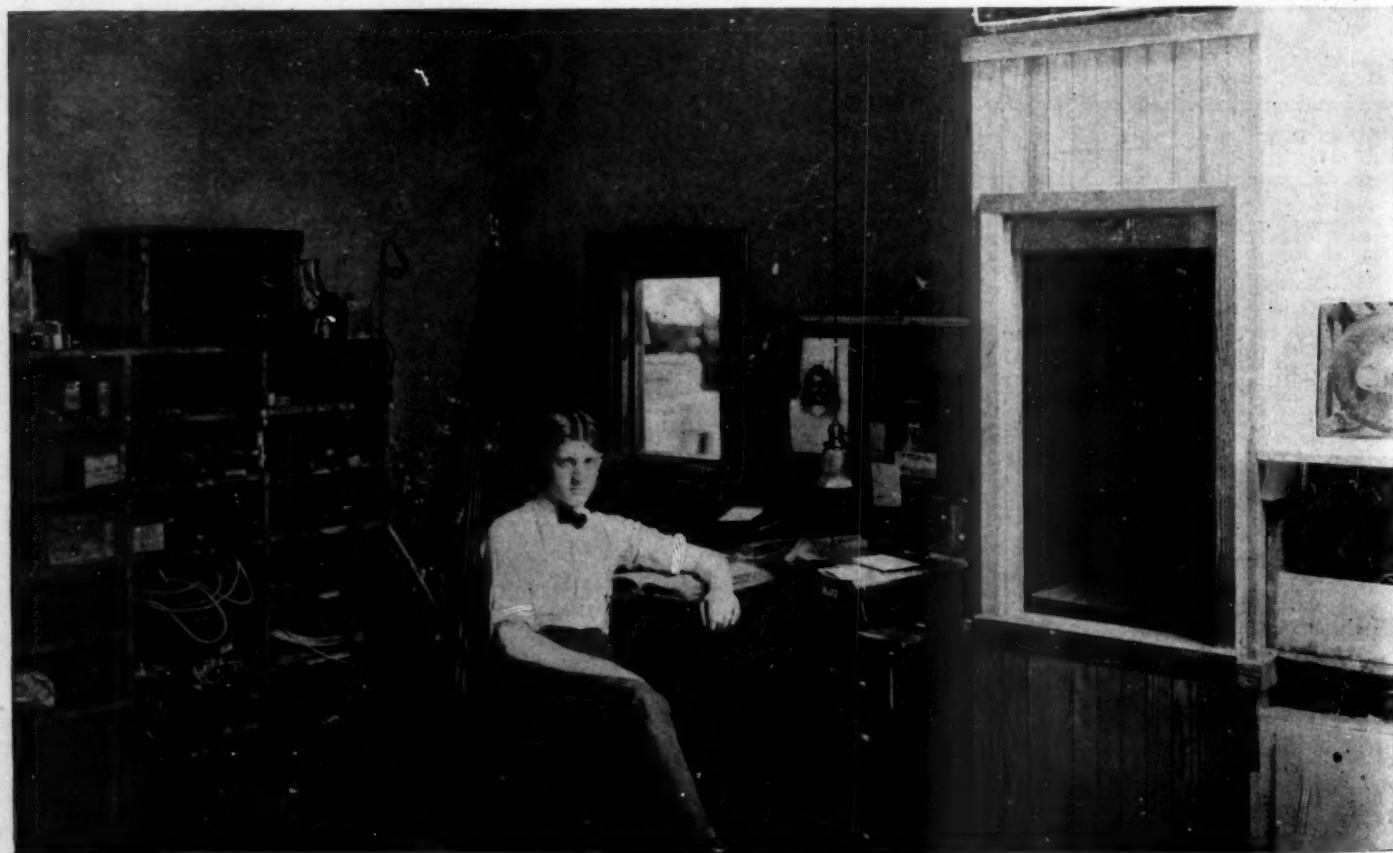
"PERCY, get me a fourth speed clutch shaft and fourth speed forward bearing for a 1905 car, I have to get a train in 4 minutes," shouted an excited salesman to the stock room clerk as he rushed into the stock room of the Electric Vehicle Co.'s branch in Chicago. In 40 seconds he was rushing out again with the parts under his arm and in a couple of minutes more he was waiting in the Illinois Central depot for the west bound train to hustle him to his destination. Forty seconds for the receiving of an order for a couple of parts of a last year's car and for the delivering of those parts is a record performance in view of the fact that the

two desired pieces were but a couple out of 5,000 carried regularly in stock. Getting the two and delivering them in 40 seconds becomes all the more phenomenal when viewed in the light that the 5,000 parts regularly carried belong to twelve different Columbia models, eight of which are gasoline types dating from the first hydrocarbon model produced by this pioneer of electric vehicles and the remaining four are electric styles covering the gamut of electric pleasure models built by the company and retailed throughout the west. The test of getting these two parts referred to in 40 seconds was not a special record for the occasion, but an every-day performance, and neither of the principals in the work was aware of the stop watch being held on them.

This was not the only time-splitting performance of the stock room clerk. "Give me a 5-16-inch bolt 1½ inch long," said a repair man. Without hesitation, without wondering where to find such a bolt and without an apparent thought, Percy automatically went to the proper drawer and in less time than needed to state the case the desired bolt was delivered to the repairman who was waiting at the delivery window for it. A few seconds later such requests as "Five-sixteenth lock washer," "Save out two twenty-two-tooth sprockets for Mark XLV," and several others received equally prompt attention.

The solution of this uncommon promptitude in securing parts for any car of any

season, whether this year's model or that of 3 years ago, may be found in the succeeding paragraphs and the several illustrations on this and the two succeeding pages. Perhaps the best introduction to this solution is in the view on the third page, showing the interior of the stock room, in which the 5,000 parts for Columbia gasoline and electric machines are stored. The stock room is 18 feet wide and 21 feet long. Two hundred and ninety-eight drawers tell the tale. Each drawer is numbered as seen, and above the number is a small card containing the specifications of the many parts carried within the drawer. Each of these drawers is 34½ inches long, 8 inches deep and 9¼ inches wide, inside measurement. These drawers are arranged on two sides of the stock room, there being 144 on one side arranged in twelve rows of twelve each and 154 on the other side arranged in eleven rows of fourteen in each. The capacity of each drawer, apart from its absolute measurement in inches, is best realized in the illustration showing three of them out to their full. One scarcely more than half filled contains numerous gears and pinions for the transmission of the gasoline machines; in another is a complete set of shaftings with several duplicates, and the third contains similar standard parts. Two hundred and ninety-eight drawers, each numbered, however, is not sufficient organization to permit of getting parts in 40 seconds; further system is called into

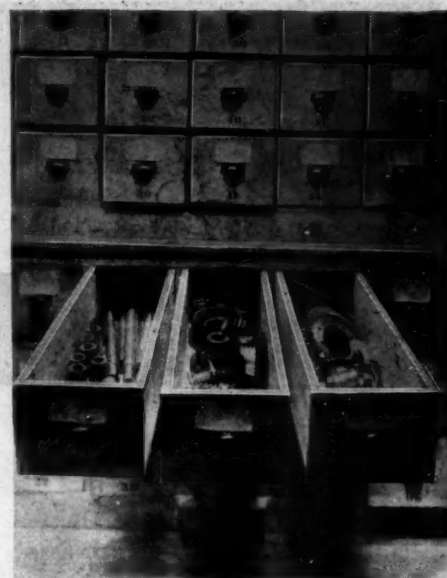


STOCK ROOM CLERK IN OFFICE WITH TOOL RACK BEHIND HIM, DUMB WAITER TO RIGHT AND WINDOW TO REPAIR SHOP

service. The 298 are divided first of all into two divisions, one for gasoline cars and another for electrics. A further dividing is essential because of the multiplicity of models. In this the gasoline cars of this year have a definite location, say on the left wall and near them are the gasoline models of last year and adjacent to these those of previous years. Similarly, the electric models of various seasons are classified. In this way it is but the work of a second after an order is received for the stock clerk to reach the proper division of shelves, then by a scheme of sub-classification a short time is required in locating the proper drawer. Many drawers are practically empty and others are filled, the rule of always having a good supply of the more fallible parts on hand being followed. In many drawers several different parts are carried, it being impossible in such a system of classification to have an individual drawer for hub caps, switches, commutators and similar small parts. In other cases such parts as steering pivots, acetylene generators, carbureters, differentials and clutches call for separate drawers. Many parts, like crankshafts, tires, front axles, back axle casings, wheels and lamps are too large for the limited space in the drawers and shelves are furnished for them.

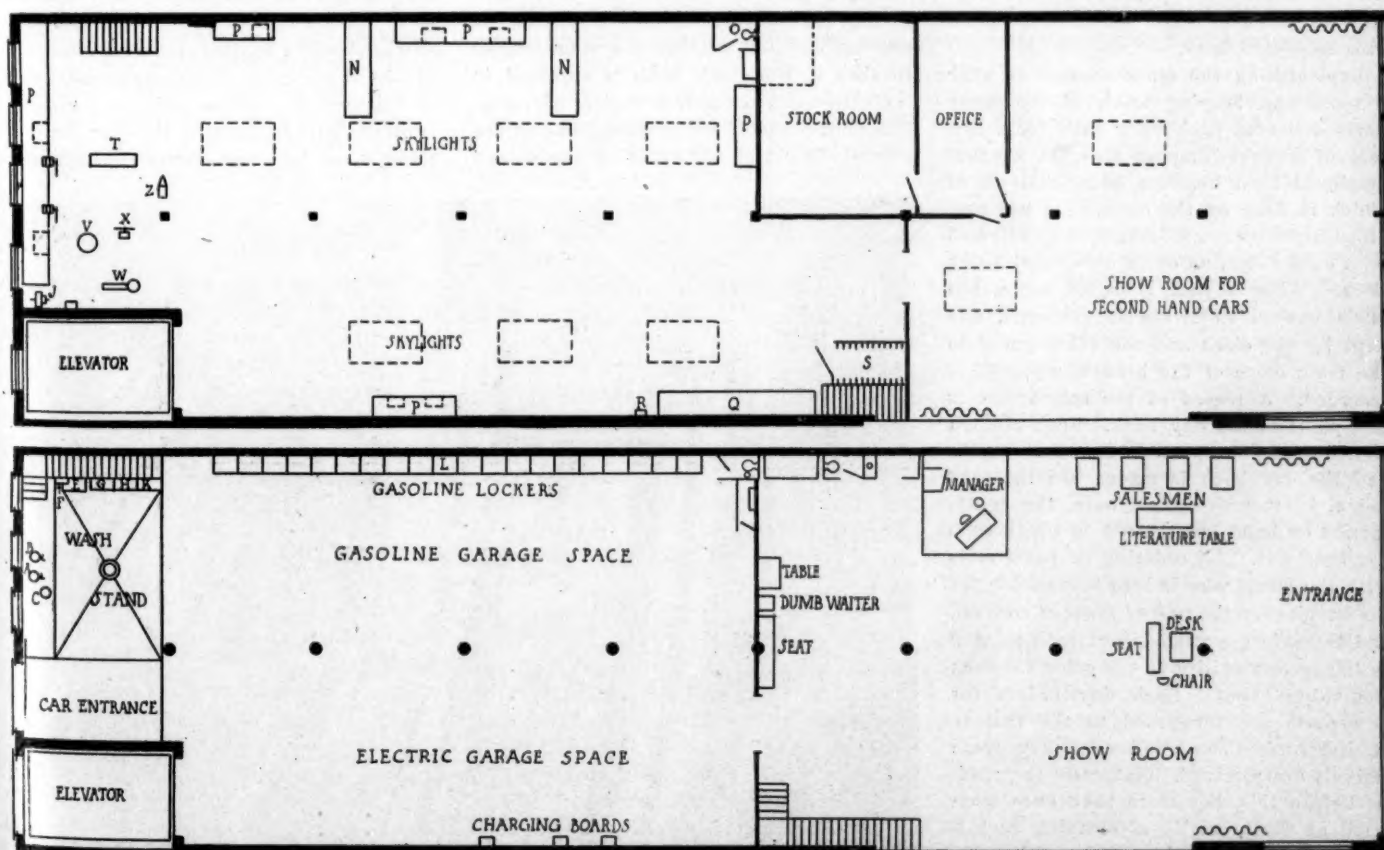
This naturally leads to a consideration of the other schemes for storing parts other than the 298 drawers. First of all on entering the stock room the observer is confronted with a large junk table reposing in the center of the room and piled

high with boxes containing newly received parts, tops and other essentials. This table, 10 feet long by 2½ feet wide and 3 feet high, has a literal junk rack beneath it containing used and discarded parts, many of which are valueless but may in emergencies do good service until new parts are received. In the corner of the room between the drawers are three tire racks for carrying casings, each having accommodation for eight. Nearby is a shelf for the gingham covers for the cars. Above the rows of drawers is a 6-inch bed in which horns, headlights, crankshafts, axles and wheels are stored, and above the door is a deep shelf for discarded acetylene generators. The remaining storing accommodation is shown in the view of the office part of the stock room. The stock clerk sits at his desk with a card index case, order blank and day book at hand. To his right is a house telephone used in rush cases when a hurried message can be delivered from the manager's office down stairs and to further facilitate delivery a dumb waiter just to the right of the desk can be utilized for delivering the necessary parts to the ground floor, making it possible for a salesman or customer to get any parts of any model without even visiting the stock room, remaining all of his time in the manager's office on the ground floor. To the right of the dumb waiter is the large waste box, whose contents is subjected to as great care as those of the drawers. A workman in the repair shop comes to the small window at the left of the clerk's desk for any sup-

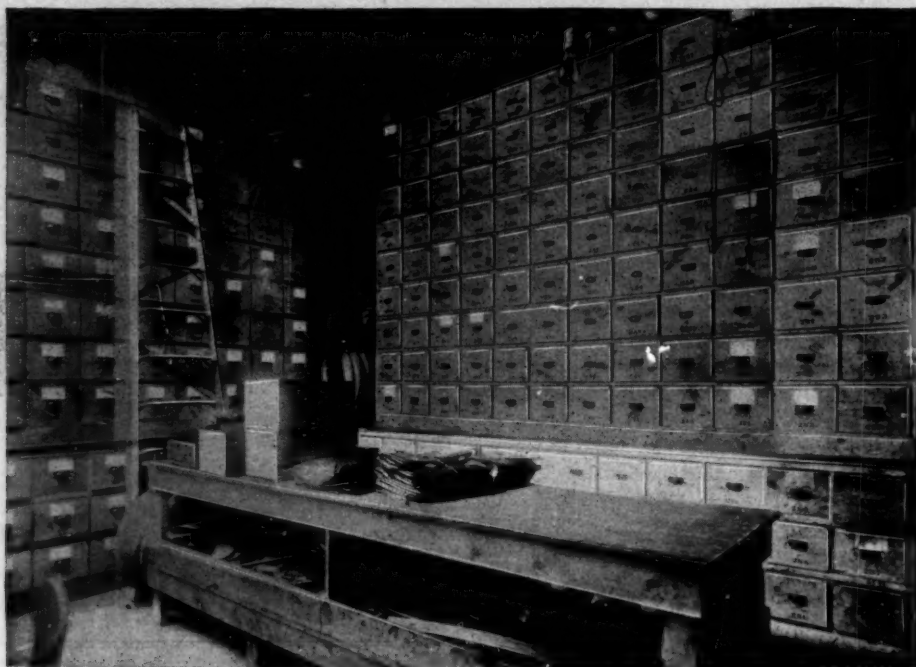


STORAGE DRAWERS WITH CONTENTS

ply of waste or excelsior carried in a smaller case above the waste. On the floor to the right, but not seen is the entire supply of hard greases and non-fluid oils. Behind the clerk is a tool case, or tool rack, 3 feet deep, 4 feet wide and 4½ feet high. It is divided into twenty-four compartments, each well stocked with new and old tools and other tool supply parts. On top of it is a small cabinet for the more delicate tools that require careful attention. Not shown in this illustration, but revealed in one by itself, is the spring rack carrying twenty-four springs for the



TOP ILLUSTRATION SHOWS SECOND FLOOR, AND LOWER ONE GROUND FLOOR OF COLUMBIA BRANCH



INTERIOR OF COLUMBIA STOCK ROOM, SHOWING STORAGE DRAWERS

several gasoline and electric machines.

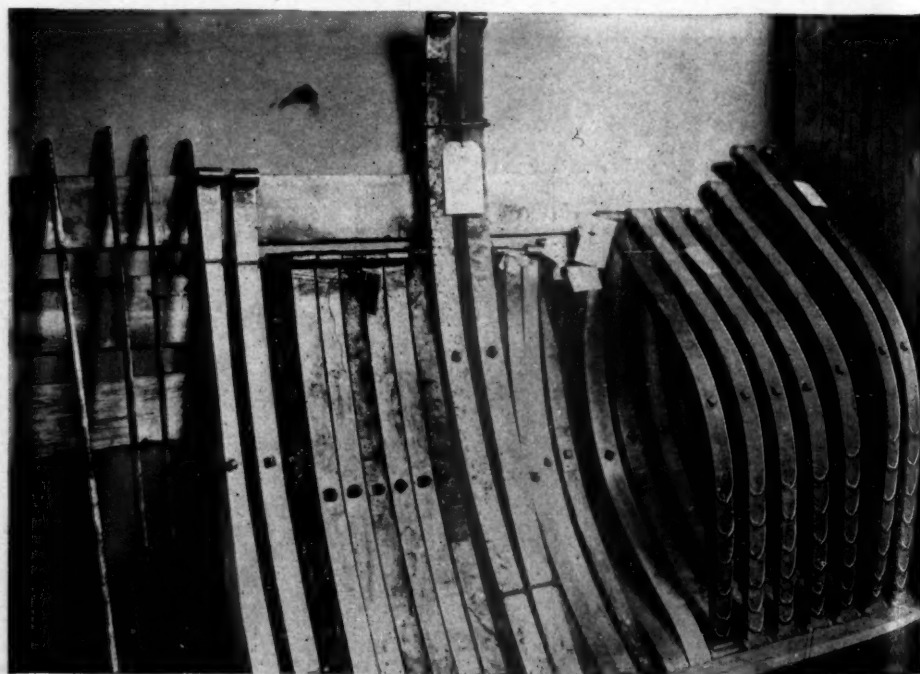
Often springs are thrown into one corner and promiscuously covered with tire casing and other parts, but here a difference is noted. Two clips on the floor and a couple on the side wall comprise the rack. The bottoms of the springs rest against that on the floor, preventing their slipping out and those on the wall protect the wall. In this spring rack is shown one or more change-speed and brake levers. Light for the room comes through an 8 by 6-foot skylight shown in the floor plan in dotted lines.

Replenishing the stock carried in such a room and keeping track of the many parts delivered each week calls for a system of bookkeeping as accurate as that employed in a business house and all of which is done by the clerk. He has provided a goodly sized desk, already referred to, a card index, an order blank and a day book. When a part is called for a bill made out in duplicate is rendered, one kept by the clerk and the other going to the main office of the branch, where it is recorded. A record of the transaction is also made in the day book. Each night a checking up between the order blanks and the day book is made. On the card index is recorded not only the parts carried on hand but the use to which each has been put. All ordering of parts rests with the clerk, who is held responsible for the keeping of the proper number on hand and the safe guardianship of each as well as the accountability to the office for each one shipped out. Each day orders for new parts are forwarded to the factory at Hartford, Conn., and each day fresh arrivals are received. Naturally the reader, before this, has more than once wondered at the necessity of carrying such a large stock of parts in a Chicago branch. True, 5,000 parts are greatly in excess of

the Chicago demand, but from this stock room is furnished all the supplies for Columbia users from Detroit to 'Frisco. All of Michigan and Indiana find it quicker to send to the Windy city, than to Hartford, Conn., and often this feeling is shared by users as far east as Buffalo, N. Y. The west depends entirely on the Chicago branch, St. Louis, Denver, Omaha, Salt Lake City and San Francisco receiving all their parts from this source.

Apart from the stock room the entire Columbia branch building is worthy of passing mention, in that a system similar to that in the stock room is enforced in the salesroom, the garage and repair shop. The floor plans of the building, one of the ground floor and the other of the second

floor, show the general layout. The depth from front to rear is 170 feet 9 inches, with a uniform width of 49 feet 11 inches. The lower floor is divided into two parts, a salesroom and showroom in front, the entire width of the building and 60 feet deep and a garage in the rear 112 feet deep. In the partition separating these rooms is a door 8 feet wide and 10 feet high, sufficient for running the largest car or truck through. As the building is in a built-up part of Michigan avenue, numbers 1332 and 1334, in the heart of automobile row, all the light must come from the front and rear for the first floor and from the front and rear and skylights for the second floor. The front is given over entirely to windows and doors, the small iron framework supporting these occupying but little space. Entrance is by a bank of three single doors with entrance in the rear for all cars. The front has two windows at one side of the three doors and one at the other, and above these are hinged transoms. The front lighting for the second floor is equally complete and to assist these are nine large skylights. Referring particularly to the salesroom on the lower floor, the plan shows the manager's desk on a raised platform near the rear surrounded by heavy brass railing. In front of him is a set of four desks for salesmen; near by is a large catalogue table on which is also stored the crop of weekly trade publications. Nearer the center of the room is a desk, rattan seat and chair for the use of salesmen when closing a deal or talking to a group of prospective buyers. The wavy lines mark the presence of radiators in the heating system and near the door at the back is a large seat and table, presumably for those waiting for a car from the garage. Passing through the wide 8-foot door into the garage the observer



SPRING RACK IN COLUMBIA STOCK ROOM

notes an 18 by 11-foot electric elevator in the back corner. To the right of it is the main entrance of the cars, a sliding door 8 feet 4 inches wide, and close by is the large washing rack with hot and cold water faucets marked A and B. C is a self-measuring gasoline pump which draws its supply from a 250-gallon tank buried in the alley at the back. The garage superintendent's desk E is close to the foot of the staircase leading to the repair shop on the second floor and on the back corner of the desk is the time clock F. A complete Bowser oil outfit is marked G, H and K, there being three tanks—one for Valvoline oil, another for heavy oil and the third containing kero-

sene. Each has a non-measuring pump and is located in a separate cabinet furnished with lock and key. At L is shown twenty lockers for users of gasoline cars who store in the garage. Each locker is 8 feet high, 3 feet wide and 2 feet deep, and has three shelves and ample floor space. Each garage user has a locker key where all parts of his car liable to theft can be stored.

The second floor, like the lower, is divided into two compartments, the front one for a show room for second-hand vehicles and the offices and the back devoted exclusively to repair work, the right side for gasoline machines and the left for electrics. The exact location of the nine sky-

lights is noted as is the row of eight 8 by 8-inch posts down the center of the front and rear parts. In the repair shop is a pair of repairing pits N, each 3½ feet wide and 11½ feet long. Between the pits along the right wall are large work benches P, each with lock drawers shown in dotted lines. Across the back end is a long repair bench fitted with a couple of vises and two lock drawers. A complete machine shop is housed in the back end of the shop and consists of a 10-horsepower electric motor J, a starting box beside it, a boring mill W, a lathe T, anvil Z, emery wheel X and arbor press V. Q is a large battery bench with a rheostat R and S is a wardrobe for workmen.



DRIVING A MOTOR CAR - USE OF THE BRAKE

In a remarkable study recently published in France under the title of "Good and bad drivers," my excellent confrere, L. Baudry de Saunier shows alternatively the self-possessed, careful, economical chauffeur and the "grand stand player" whose principal object is effect regardless of tires, transmission, heating, wearing of the clutch, etc. I would like particularly to emphasize one point on the frequent "bum driving," which, although he mentioned it, did not seem to impress Mr. de Saunier as much as it always does me. It is about the abuse of brakes, the poor, ill-treated brakes, that are in the hands of some stupid drivers the direct factors of ruin of the very best care. How should a good driver use his brakes? The best answer to this question is an indirect one. A good driver should brake only when it is absolutely necessary. I will add that this is more difficult than to excitedly crush the pedal at every corner. The real driver shows his art ten times more by saving the brakes than with that orgy of movements of the foot common to the so-called "dare-devils." To avoid the use of brakes a good driver must be extremely careful on all occasions. The motor car owner, no matter if he himself drives or not, should bear in mind that an imprudent driver is a "tire eater," a mechanical parts destroyer, an indefatigable maker of invoices and repair bills.

Now here is a road fork on which the good driver has to engage himself. Let us watch him. He first disengages his clutch a hundred yards before, or less, according to his speed, and lets the car go on at its decreasing gait until the fork is reached. If the way is free, all right—he simply engages his clutch and resumes his former speed. The brakes have remained untouched. Evidently, the speed of that well-driven car has momentarily fallen back to 18 miles, for the prudent driver was ready to stop within 10 feet had any-

thing appeared in front of him. But what are, in the age of a sensible man, the few seconds thus lost at every "doubtful" corner? The old accident insurance called "Care" is, in the motoring game, far safer and better than the best policy offered by the wealthiest company.

In the conditions described above, a careless driver simply overlooks the forks, railroad crossings, or any other modifications as to the straightness of the route. And is ready to give a furious push of the foot or a similar movement of the hand to set one of the brakes, or both, when necessary. Let us see how he acts. At 50 yards, or less, when the obstacle is suddenly visible, at a turn, fork or crossing, the bad driver strongly pushes the pedal, then the good old tires plough the road for 10 or 15 feet. This is not motoring—it's "sleighting," sometimes trimmed with harmonious zig-zags from one side of the road to the other. But what of that? The obstacle was avoided, was it not? And to put the last touch to the picture, the man generally will swear at the inopportune object, a child, heavy team or cattle. Some others of the same class have still less fear, and—in similar cases—as they know very well that they cannot possibly stop a car going 40 miles an hour within 2 yards, they rely upon their "usual luck"! Then, here is a car that plays "head or tail." If it is head, the way is free; if it is tail—a runaway horse, or a riding farmer, or another motor car—death hovers 2 or 3 seconds, falls down or flies away. But it has been a terrible instant. The driver has maneuvered like a madman to avoid being crushed. He has brutally treated his brake pedals and lever and if the accident did not occur, the occupants were, at least, thrown over each other.

When the good driver sees a railroad

crossing, he approaches it slowly, looks right and left and passes without having touched his brakes. If later on a team is in sight, he throttles down gently a good 200 yards, or less, from it, according to his actual speed.

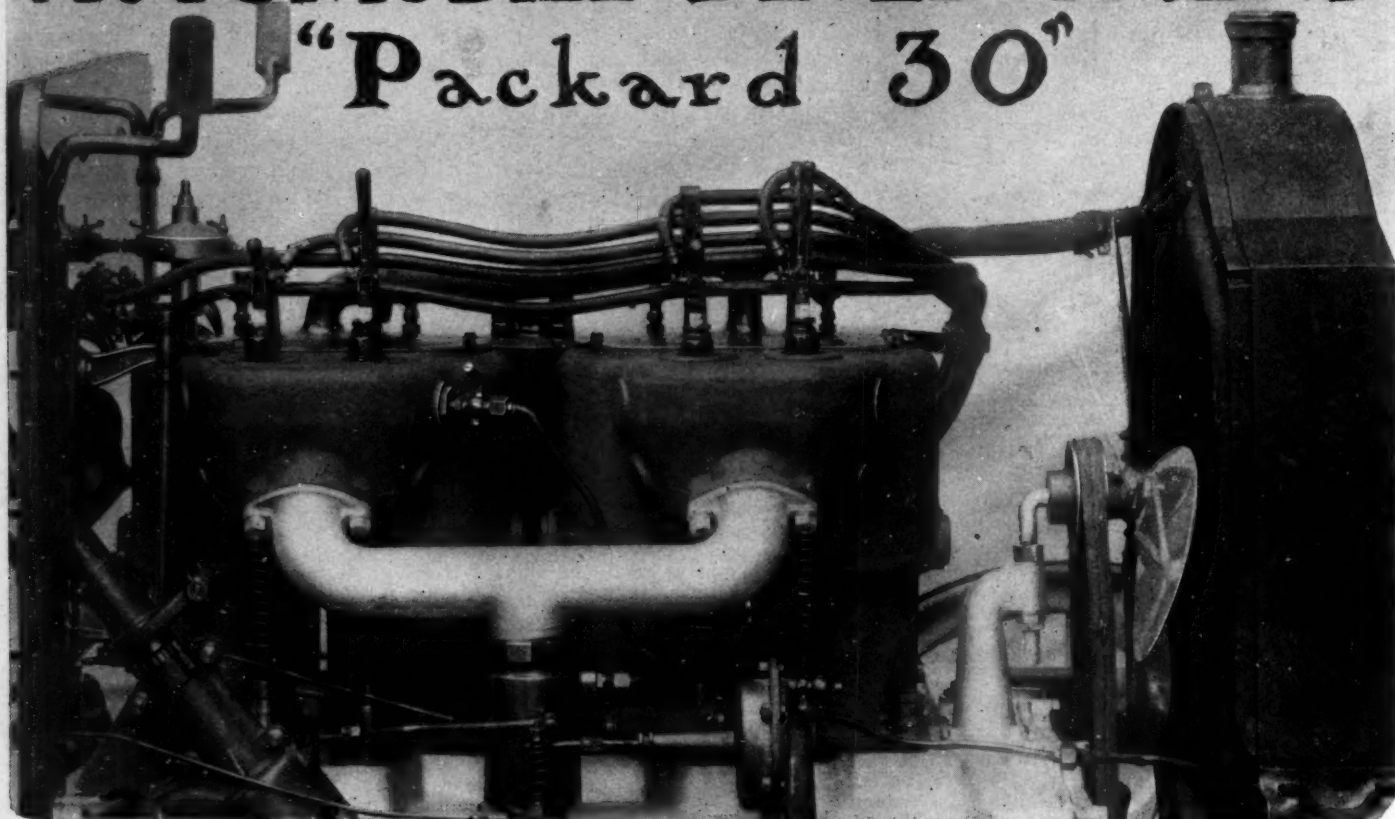
He knows that a sudden stop, if urgently demanded, will not be so harmful after all. It is needless to enumerate here all circumstances in which breaking can be intelligently avoided. Every sensible man who drives an automobile knows them as well as I do. Let us only remember that at the turns, forks or railroad crossings, the careless motorist has, of all times, risked his purse and his life.

I will not discuss now the mechanical mounting of the brakes—this is a question dependent on another domain; it is, on the other hand, rather complicated and from one year to another, benefits only by very little progress. But we can remind the chauffeur that the accessibility of the pedal or lever must be absolutely perfect, the brakes sensitive enough to be maneuvered by an "instinctive" movement of the driver when there is imminent danger; the foot and the hand must be able to, by a simple reflex motion, produce their effective action. This means that pedals badly placed—with foot levers so highly set that one is obliged to lift up the leg to reach them—are dangerous; that brake levers in too close proximity to the speed lever and too much alike its neighbor, so that the hand is liable to commit a mistake, are grave faults of construction and any sensible manufacturer avoids them.

A good regulating of brakes is a necessity with the careful chauffeur. After having regulated them—two or three times a year should be enough—go on the road and see how they work. Such a caution is extremely necessary, especially when you deal with the driving wheels; an irregular tightening of either drums may cause the car to turn over.

EDITOR'S NOTE—This is the first of a series of articles by Georges Dupuy, a well known French authority now resident of America

AUTOMOBILE DEVELOPMENT



INLET SIDE OF "PACKARD 30" MOTOR SHOWING NEW DESIGN OF VALVE CHAMBERS

"PACKARD 30" is the style of the matured "Packard 24" which becomes the 1907 model of the Packard Motor Car Co., of Detroit. Like its forerunners of several years past, it is to be the one car of the year, upon which all of the resources and energy of the entire Packard organization will be bent. With the newly completed factory additions containing in round figures 100,000 square feet of floor space, the Packard factory now utilizes 325,000 square feet of manufacturing space, and thus will be able to make and deliver on schedule time 900 cars for the coming season.

The "Packard 30" is furnished as a standard touring car with large luxurious body, having room for at least five passengers and a liberal supply of baggage to be carried when touring. As a selfish car it is also turned out as a runabout, which appears still more sporty and snappy looking than even the present runabout. Also a limousine, embodying all of the latest ideas and conveniences, is included in the line.

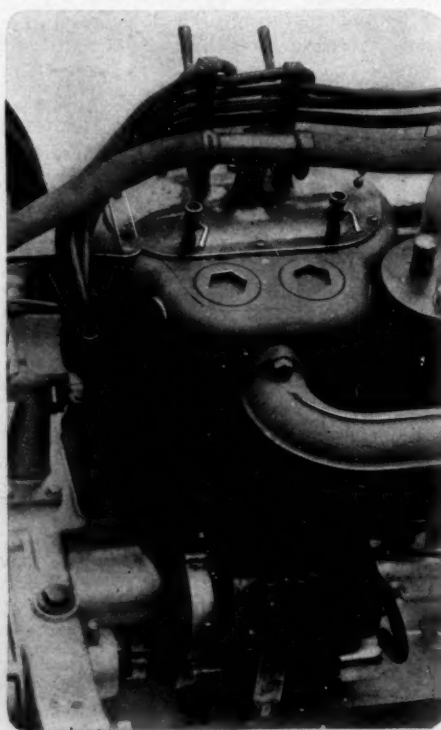
Aside from greater power and consequent constructional enlargements, the car differs from this year's model only in occasional detail. Like the smaller car of this season, it receives its name from its horsepower rating, established on the French basis, although the actual brake horsepower, according to American standards, is much more than 30, it being said to show be-

tween 55 and 60 brake horsepower on test.

The running gear is almost identical with that of 1906, the chief difference being an increase of wheelbase to accommodate the larger motor, the measurement now being 121 $\frac{1}{4}$ inches. The additional

length is entirely in front of the dash, making the bonnet longer, but leaving the frame, from the dash to the rear, the same as in the "24." The tread is 56 $\frac{1}{2}$ inches.

The frame itself is of cold, rolled pressed steel of the same channel section system as this year with the top and bottom flanges of the side bars extended inwardly at suitable points to form integral gussets for the reception of the cross members, which are also of cold rolled pressed steel. Altogether there are four cross members which complete the frame, there being no subframe. The flanges of the side bars have been increased in width $\frac{1}{4}$ inch making them now 2 inches wide by 5 inches deep. The frame is supported and suspended exactly the same as heretofore upon four semi-elliptic springs, 40 inches long in front and 56 inches long in the rear. The springs are shackled in the usual manner and furnished with clips to control the action of the leaves. The front axle is of seamless steel tubing as heretofore with a reduced depression in the middle, and an increase of $\frac{1}{4}$ inch in diameter, it now being 2 $\frac{1}{2}$ inches. The steering knuckles are of the same general design but increased in size, being heavy forgings fitted with self-seating and adjusting ball bearings. They are arranged with the jaw above the center of the axle itself, dropping the axle in relation to the wheel center to permit of low spring suspension.



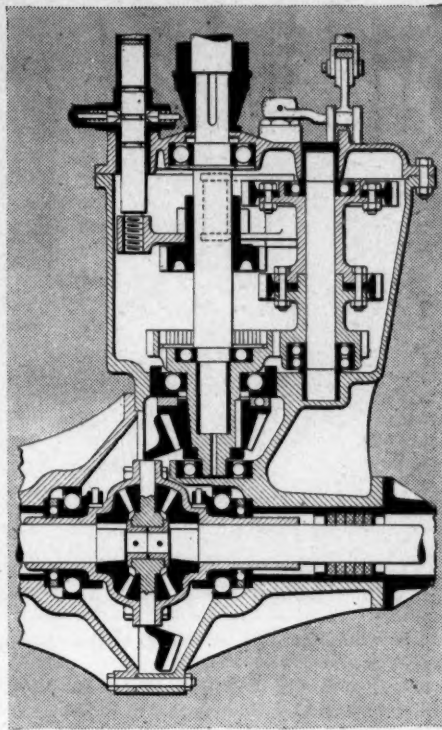
GEAR-DRIVEN MAGNETO

The front wheels are 34 inches in diameter, of the artillery type and have the usual Packard peculiarity of ten spokes. Instead of running on roller bearings as last year, they are now fitted with imported Hess-Bright ball bearings. They are equipped with 4-inch tires. The rear wheels are 34 inches in diameter but have twelve spokes, and are fitted with $2\frac{1}{2}$ -inch tires.

The steering gear is the same worm and segment system as formerly used, the gear and segment being forged integral with their respective shafts so there is no opportunity for the occurrence of looseness. The steering column is inclined slightly more than heretofore. All steering connections are fitted with oil cups.

The motor is similar in general design to the present one, but examination discloses several detailed changes. The bore has been increased from $4\frac{1}{2}$ to 5 inches, while the stroke remains $5\frac{1}{2}$ inches. The cylinders are cast in pairs and the castings and also the castings for the piston and piston ring blanks are made in France and shipped to the factory in the rough, where all machining and finishing is performed.

The inlet and exhaust valves are on opposite sides of the cylinders as at present, but are slightly increased in size to harmonize with the increase of cylinder volume. The valve chambers are raised and are tapered at their lower portions to reduce weight and instead of presenting the

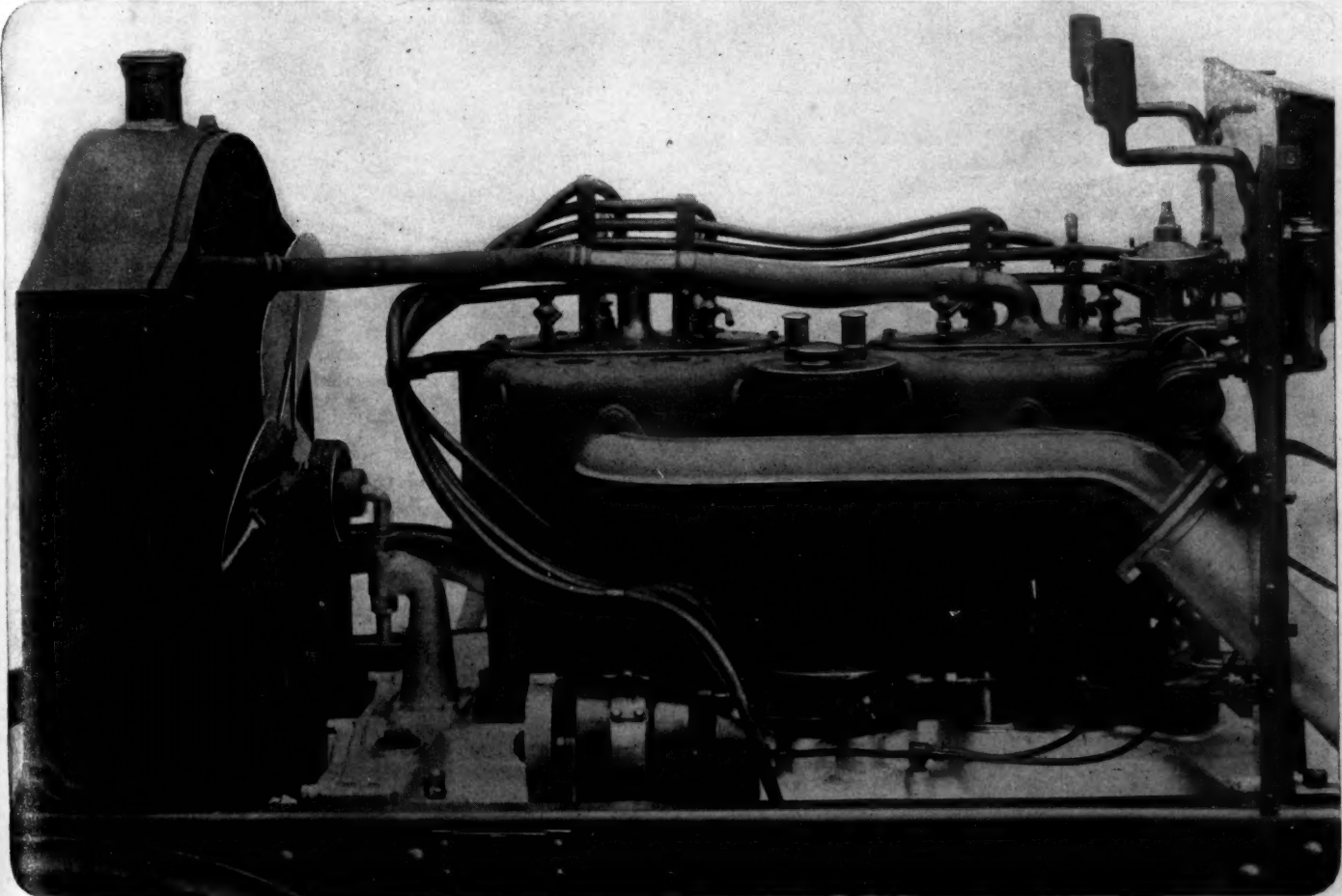


PACKARD TRANSMISSION

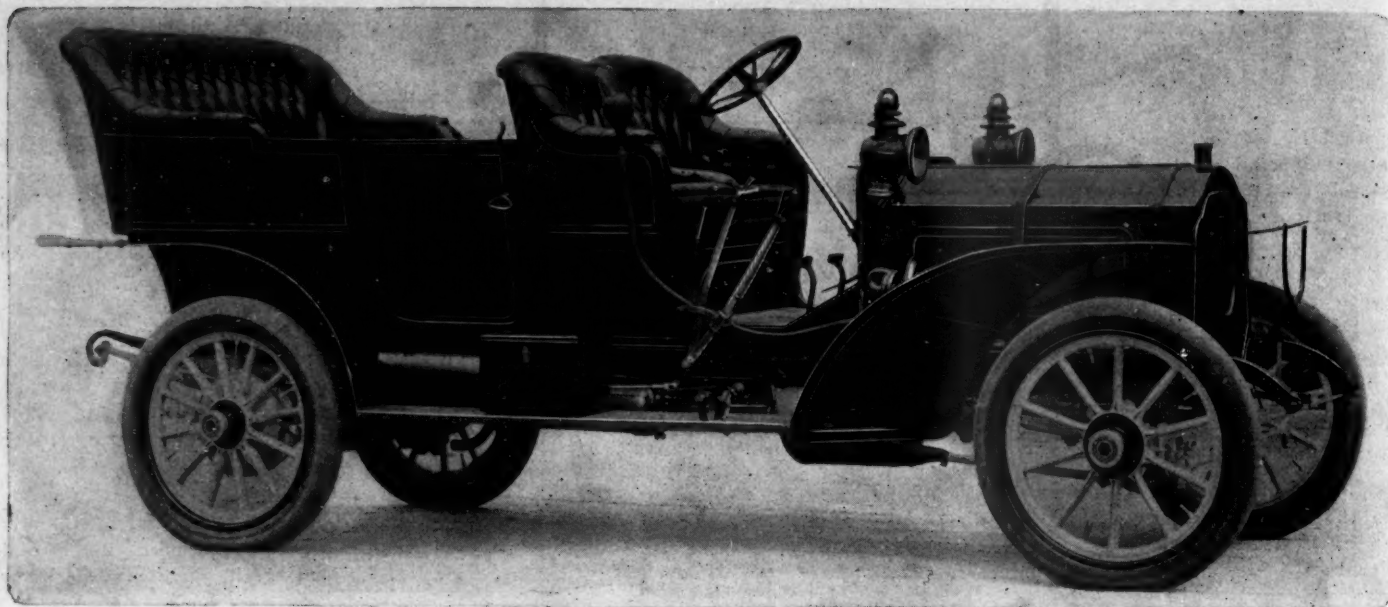
appearance of a decided dome as in the case of the "24," the entire top of the cylinders and valve chambers is substantially flat. The pistons are of typical construction, each having four ground rings. In the manufacturing processes the pis-

tons, cylinders and rings are run together in the factory under belt power with a suitable polishing agent, giving them a lapped and perfected surface.

The crankcase is of cast aluminum and made in three parts in very much the same form as in 1906. The uppermost part forms the engine base and has end extensions which rest directly upon the side bars of the main frame to support the motor. These side bars are connected with a horizontal web which forms a bed closing the space between the motor and the frame and stiffening the motor base. This section of the crankcase carries the camshafts and all of their bearings, also the crankshaft and all of its bearings. The central section is secured to the uppermost one along the crankshaft center line and is attached by several studs and nuts and when in place secures the crankshaft and all of its bearings in position. The lower section serves as a cover and entirely closes the crankcase and when in place serves as an oil well, and when removed permits ready access to the entire contents of the crankcase. The crankshaft is longer and also heavier than in the "24," but it is of the same design and is made from high carbon, open hearth, oil-tempered steel. All bearing surfaces are ground and the entire crankshaft is entirely machine finished. The shaft runs on three liberal sized bearings which are bushed with Parsons white bronze as in 1906. The



EXHAUST SIDE OF PACKARD MOTOR, SHOWING FAN SUPPORT, MAGNETO LOCATION AND COMMUTATOR DRIVE



PACKARD 30, THE 1907 PRODUCT OF THE PACKARD MOTOR CAR CO.

connecting rod bearings are also bushed with the same material. All of the cams and cam rollers are contained within the crankcase and fully protected and lubricated.

All of the camshaft and time gears together with the gears driving the magneto and the water pump are contained in a separate oil-tight compartment constituting an integral part of the engine base. These gears are made from bronze and fiber running together, the fiber gears being carried on bronze webs and all disposed to give correct meshing relations between the different materials to produce quiet running and durability.

Motor appurtenances are similar in character to those of the present. The cooling is of the standard positive circulating system, comprising water jackets cast integrally with the cylinders. A gear-

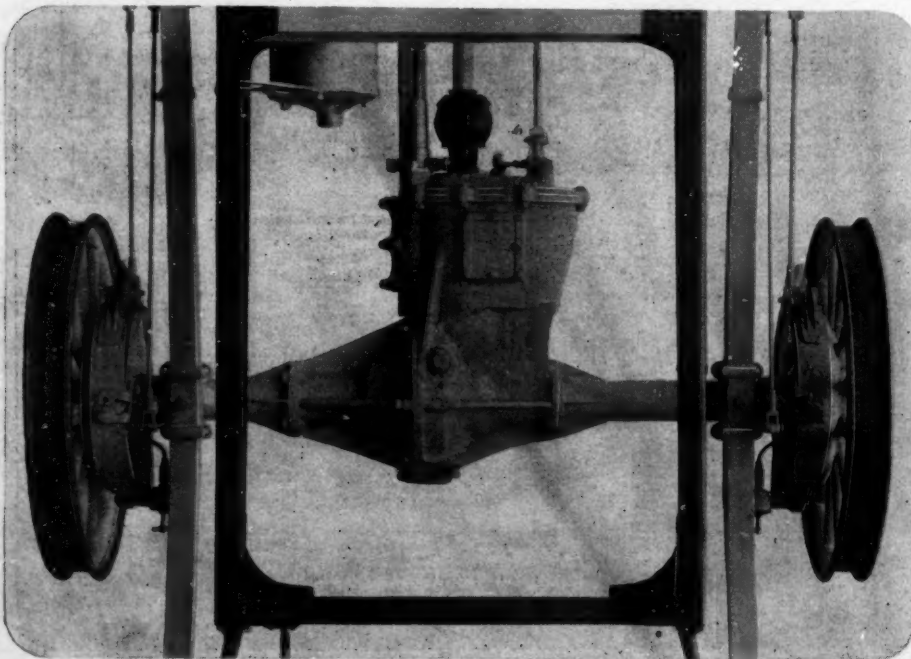
driven gear pump and a tubular combination radiator and tank, with forced draught produced by belt-driven fan adjustably supported upon the front of the motor base instead of on the radiator as heretofore, are in the cooling system. The capacity of the water system is 6 gallons.

The carburation is a water-jacketed carburetor of Packard design placed low down and close to the right hand side of the cylinders. It has the usual float feed with copper float and single vertical aspirating nozzle. The mixing chamber is tubular and vertical and in its upper portion is placed a simple butterfly valve throttle. In addition to the primary air inlet through which air is drawn upward around the aspirating nozzle, there is an automatic poppet and auxiliary air valve adjusted to open at a certain degree of suction in order to maintain uniform mixture at high

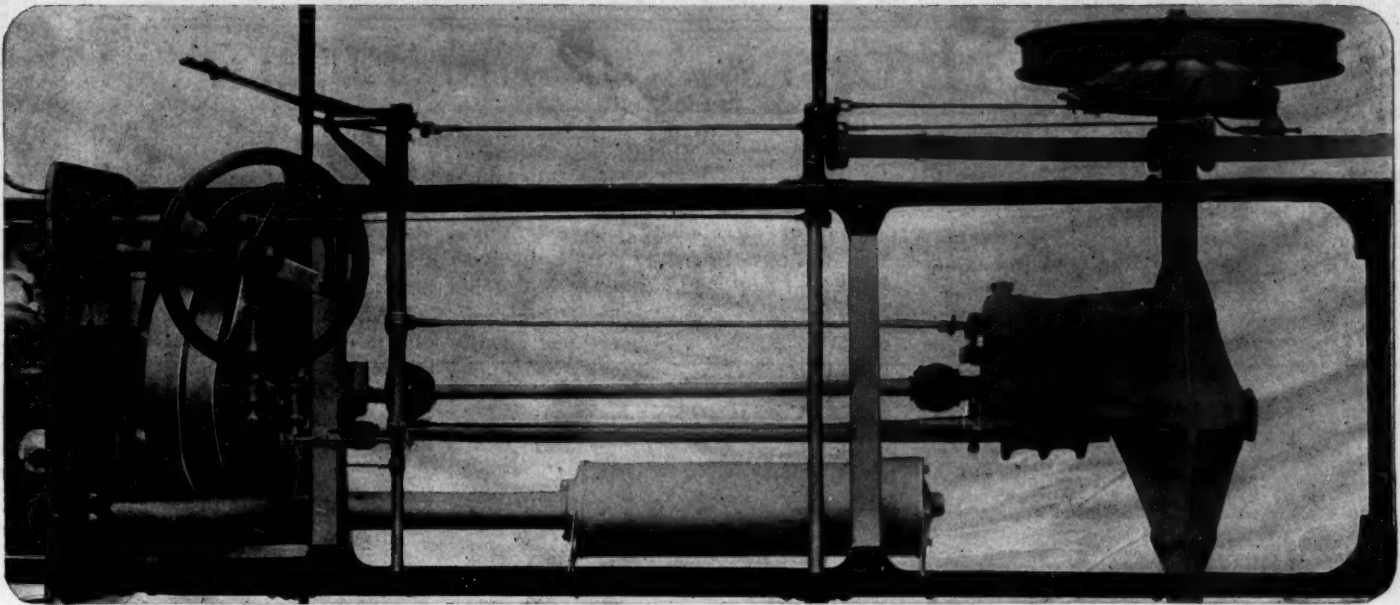
speeds. This is different from the usual construction of such valves, in that the spring tension is regulable by a sliding wedge which is controlled by a small lever on the dashboard of the car, thus rendering the automatic feature adjustable to meet all conditions. The fuel is taken from a 21-gallon copper gasoline tank carried under the front seat.

Ignition is as in 1906, by means of an Eisemann, imported, low-tension magneto supplemented by imported storage battery for starting and reserve current. The magneto instead of being set above the engine base and driven by sprockets and chain, is now placed low down on the bed of the crankcase and is direct driven by enclosed gears. The storage battery is carried on the running board of the car in a metal box. On the dash arranged in one unit are two coils, a single non-vibrating coil for the magneto current and a vibrator coil for the battery current. Between the two coils is a hand switch for connecting or disconnecting either system. This switch is provided with a lock so that the owner may lock his car out of service at any time he desires. The final high tension wiring to the spark plugs is the same for both systems. The difference from usual construction is that at the spark plugs, as in 1906, the secondary wires are connected with the plugs by individual knife switches. This renders possible the instant disconnection of any plug and the ready testing of the ignition in any cylinder. The commutator is at the top of a vertical shaft at the rear of the motor as heretofore. The spark lead and throttle hand levers are placed on the steering wheel in the same manner as formerly.

Lubrication of the motor remains the same simple splash constant feed system that has characterized Packard cars for the past 3 years. There is a partition in the crankcase between the two pairs of cylinders in order to insure the preserva-



BACK AXLE PACKARD CONSTRUCTION



CLUTCH, DRIVESHAFT AND COMBINED TRANSMISSION AND DIFFERENTIAL HOUSING AT REAR AXLE

tion of an equal oil level for all cylinders when the car is running on a grade. The oil is pumped in equal quantities to each section of the crankcase by a small pump, driven by worm and gear from the commutator shaft. The oil feed is through two sight feeds on the dash. These are large glass tubes filled with glycerine, through which the oil rises. The oil reservoir is of 1 gallon capacity, cylindrical in shape, placed on the left of the motor, midway between the two pairs of cylinders.

The motor is equipped with the same hydraulic governor that was introduced in the model "24" to supersede the centrifugal governor previously used. This governor is a simple diaphragm affair incorporated in the water system. It is situated close to the carburetor and acts directly upon the butterfly throttle above described. Its limitations and also sensitiveness of action are adjustable, and by means of the foot accelerator it may be cut out, leaving the control of the throttle wholly to the driver.

The exhaust is taken from the cylinders through a typical flanged cast steel manifold and thence through a large seamless steel tube exhaust pipe into a large ruffler of the concentric cylindrical type.

The clutch is the familiar Packard, internal expanding device, with the same special screw and nut method of expanding the inner ring. It has been enlarged over the 1906 pattern to harmonize with the increase of power, being now 15 1/16 inches in diameter. The face width is the same as in the old car. The clutch is operated by a pedal and is interlocking with the emergency brake. It is also fitted with new means for adjustment, which is a simple and easy operation.

The transmission from the clutch to the rear wheels is identical with that of the previous model, the only apparent change being a new form of fastener in one of the mainshaft ball bearings, and the attach-

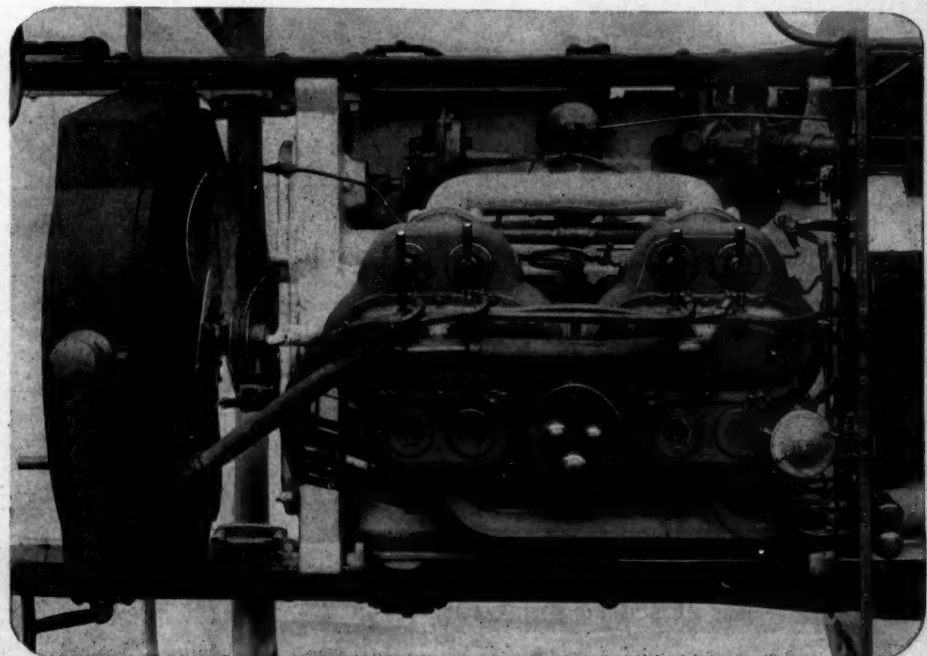
ment by pressing and riveting of the rear axle tube to the webbed flanges which constitute the transmission housing, these flanges having been formerly brazed in place.

For those not familiar with the Packard special system of transmission, it is, briefly, a sliding gearset incorporated in one unit with the final drive gears and differential of the rear axle, eliminating an independent transmission housing with its supports. The drive from the clutch to this system is by a propeller shaft universally jointed at both ends, the joints being of the special type familiar to all of those who have known Packard cars for the past 3 years.

The sliding gear set runs altogether on imported Hess-Bright ball bearings. The speed changes are affected by the sliding of one pair of gears on the mainshaft,

those on the secondary shaft being immovable. The third speed forward, or direct drive, is obtained by sliding one of the mainshaft pinions directly into the end or final gear, the latter having an internal gear to permit of this clutchlike engagement. The three forward speeds are obtained by a sliding side rod in the transmission housing, which rod has four annular grooves which engage spring-actuated spacing dogs that determine the proper points of gear engagement or disengagement and hold same in position when attained. The reverse is obtained by a separate lever.

The standard touring body has a greater overhang at the rear than the preceding one, and the extra length is all devoted to the tonneau, which is thus an exceptionally long and roomy one. The back seat is a couple of inches lower than before.



TOP VIEW OF PACKARD 30 MOTOR



LEGAL LIGHTS AND SIDE LIGHTS



MISSOURI RESTRICTIONS

Missouri motorists are preparing to go before the next legislature, which will convene in 1907, and ask for the repeal of the present automobile law and the substitution of a new one similar to the one now in force in New York. The present measure is a novel one even if it is outrageous, for if one made a tour of the state and passed through each of the 115 counties he must pay \$295.50 for licenses. The Missouri situation is best described by Roy A. Britton, secretary and treasurer of the Automobile Club of St. Louis, in a letter to Motor Age. He says:

"We have a state law which permits each county to assess, levy and collect a license fee of \$2 for each automobile, and requires a separate tag for each license so issued. In the case of state vs. Cobb, 113 Mo. App., 156, decided in May, 1905, the court held that these county licenses were good only in the county where issued and that the various counties were not obliged to recognize each other's license tag. The court, however, did not pass on the constitutionality of the act, but said that this question was not properly before it. The Automobile Club of St. Louis now has a case in the supreme court, which is to be argued in October, which raises the question of the constitutionality of the license law and of the speed regulation of 9 miles per hour. We hope to get a favorable decision.

"There are 115 counties, including the city of St. Louis, in the state, and if a person desired to have a legal right to run his machine in every part of the state he must pay out \$295.50 for licenses. This amount includes the 50 cents which each clerk is entitled to as a fee for issuing the license, and \$10 for the license in the city of St. Louis. A trip across the state from St. Louis to Kansas City would cost \$25 in licenses alone. The regular railroad fare from St. Louis to Kansas City and return is \$15. You can readily see that this license fee is the greatest item of expense in making an automobile tour in the state of Missouri.

"The law is harsh enough, but the manner of its enforcement is worse. The county authorities are very arbitrary. They refuse to allow a machine to enter the county without a license tag, even for the purpose of securing a license. For instance: Suppose I had a license in St. Louis county, but none in Jefferson county, and was traveling south through St. Louis county into Jefferson county; when I reached the north boundary of Jefferson county I would be likely to find a deputy sheriff posted on the road to warn me not to enter without a license. I would not even be permitted to

take one of the deputies in the machine with me and go to Hillsboro, the county seat, about 20 miles distant, to get the license. The only way out of it is to walk or hire a rig and drive to Hillsboro and get the license, and then return and get my automobile; otherwise, I would be subject to immediate arrest, if I went into the county without a license."

GEORGIA'S PROPOSED LAW

If a bill introduced by Senator Alsbrough passes the Georgia senate, the speed of automobiles and motor machines of any sort will be considerably slackened on roads between incorporated towns. Not only does the bill restrict the speed limit, but also places certain restrictions upon drivers when approaching or passing teams.

The bill states that the speed limit must not exceed 10 miles per hour on roads. Upon approaching anyone driving or riding a horse or mule, the machine must be brought to a full stop at least 150 feet ahead, and all noise must be ceased until the object passed is 50 feet in the rear.

If a party is approached from the rear the driver of the car must blow his horn or whistle when within 150 feet from the party, where he must check his speed and slacken and continue to decrease the mileage per hour so that the owner of the team ahead can unhitch his team and get it out of the way. Then the machine must pass at a speed not greater than 2 miles an hour. If the team is hitched then the machine must stop 200 feet away so as to allow the owner to have his team under control.

All owners of automobiles must register with the clerk of the superior court of their counties, and receive a number, 1½ by 2½ inches, which is to be placed in a conspicuous place before they will be allowed to run a machine. Violations of the provisions of the bill are to be punished as misdemeanors.

OHIO'S SPEED TRAP

It isn't the farmer alone that has an antipathy for the automobile in Ohio, but some of the towns in the Buckeye state are likewise sitting up and taking notice as to the speed limits, with the result that a number of cities and villages in that state have recently passed ordinances against high speeding. The village of Perrysburg has a rigid speed ordinance and the officials are enforcing it. A block and signal system has been established, and telephones

being placed at either end of a half-mile measurement of the main street of the town. The ordinance prohibits a machine being driven at a greater rate of speed than 10 miles per hour, which permits a half mile being covered in 3 minutes. A half dozen men, stationed at either end of the designated distance, hold watches, and as soon as an automobile comes in the trap the other end is notified to keep watch. Mayor Bowers and six deputies are in charge, and arrests of transgressing chauffeurs follow the signals of the timers. The officials have provided large signs just outside the corporation, which read as follows: "Slow Down to 10 Miles." The first enforcement of the law was on Sunday, when nine drivers were "hauled up" before the mayor of the town. All were given a fine and costs. It developed that none of the machines drove slower than 2 minutes 5 seconds for the specified half mile. The officials of the town assert they will keep "plugging away" until the new ordinance is fully recognized. Toledo is likewise inaugurating a campaign against the high speeding of automobiles and motor cycles.

ARREST SOLDIER CHAUFFEUR

Shiremanstown, Pa., has locked horns with Uncle Sam. On Saturday last the town constable stopped a government automobile ambulance, arrested Private Thomas Shea, one of its operators, for exceeding the borough speed limit and allowed the vehicle to proceed on its way to Camp Roosevelt at Mount Gretna. The ambulance was one of the type recently adopted for tests, and was en route from Washington to Mount Gretna, where it is to be given a thorough trial with the regular and state troops camped there. It whizzed through Mechanicsburg, 9 miles from Harrisburg, at a 25-mile-an-hour clip, and the chief of police there 'phoned ahead to Shiremanstown to stop it, and arrest the operator, which was done. Shea was locked up, but was later released at the request of General Fred D. Grant, in command at Camp Roosevelt.

CARRIES TOO MANY TAGS

Dell W. Noblit a Philadelphia automobilist, was arrested on the old York road recently for carrying a New Jersey tag in addition to the two Pennsylvania tags which the law calls for. He claims the Jersey tag was hooked up and could not be seen from the road unless carefully looked for; that it is not illegal to carry the tags of other states if those tags are hidden. Justice Goentner, however, imposed a fine of \$10 and costs, and Noblit says he will appeal to the courts of Montgomery county.



THE READERS' CLEARING HOUSE

LEATHER TIRES

Suffolk, Va.—Editor Motor Age—I should like to have some information about leather tires for use on automobiles. Are they preferable to rubber tires, and do you advise using them? Would it be better to use rubber tires and cover them with leather in some way? The roads here are very rough, a good many of them being surfaced with shells, and this material cuts the tires badly. I am having a lot of trouble of this sort.—M. M.

It is a pretty difficult thing to give advice about tires—there is too much difference of opinion on the subject. Makers of leather tires claim they are equal to the pneumatic tires, and the makers of the pneumatic tires naturally dispute this statement. Makers of pneumatic tires, however, make protecting strips fitted with steel-headed studs. These strips are vulcanized to the tread of the tires and are very efficient. Leather tires have been used and in some cases good results have been reported. Motor Age recently described a leather tire made in Los Angeles, Cal., for which great claims are made and apparently substantiated by the maker. This tire uses a grade of special rubber made by a patented process, and besides being waterproof is guaranteed against cutting when wet. In tests made its resiliency proved superior to that of rubber pneumatics, as its wearing qualities are appreciably better. The process of tanning and preserving the leather is covered by patents.

SAYS TAX THE HORSE

Detroit, Mich.—Editor Motor Age—While so much objection is being made to the smoke nuisance, it might be suggested that a big city will never be clean as long as horses are employed on the streets. The damage done by horses is enormous. As business men charge to each department of their business the expense pertaining thereto, we should charge to the horse and to the horse owner the damage done by them. Few would keep a horse except for the privilege of shifting on the city at large the expense entailed. A careful estimate places the number of horses at present in use inside the

Detroit city limits as 4,765. The appropriation for repaving and resurfacing for the coming year is \$398,029. The appropriation for repaving is \$290,043. Now, it is evident that most of the above expense is due to horses and horse-drawn vehicles, as the rubber-tired automobiles cause little or no wear on the pavements, and were horses replaced by automobiles the expense would largely be eliminated. Let us charge to the horse the bill for repairing and resurfacing, neglecting the bill for repaving. Curiously all of the last appropriation applies to the first seventeen wards. In addition to this, the appropriation for cleaning the streets must be charged to the horse; this is \$214,620 for the first seventeen wards. Further, the expense of maintenance of sewers is largely due to the horse. The dirt in the sewers obstructs the flow of water and makes larger pipes necessary. We have the expense also of cleaning the sewers. Let us charge one-quarter of the sewer fund to the horse, or \$47,880. Then we have a total of \$660,529. Divide this total by 4,765 and we have the yearly expense to the city of Detroit, as a city, for each and every horse, or \$138.60. Think of it! But the expense to the citizens at large is even greater. Dirt in the streets and in the air ruins large stocks and increases bills for cleaning floors, furniture, curtains, clothing and almost everything else. Let us have a tax of \$200 a year on each horse to partly cover the actual damage. The thought of an absolutely clean city is thrilling. Were Detroit to tax the horse out of existence, which it has a perfect right to do from a purely business standpoint, this city would be the Mecca of thousands of lovers of clean air and dustless streets.—Maurice W. Fox.

IOWA'S MAKER

Hamilton, Ia.—Editor Motor Age—Please state through the Readers' Clearing House the name of car manufactured in Waterloo, Ia.; also where I can procure a handbook of the gasoline engine as used in automobiles.—H. N. B.

The Waterloo Gas Engine Works, formerly the Waterloo Motor Works, makes automobiles and is probably the one referred to. Motor Age can furnish Brookes' Automobile Handbook and Motor Age for a year for \$2, or \$1 for the book alone.

YALE PARTS

Lima, O.—Editor Motor Age—I have a 1905 Yale car and will shortly need a new gear in the differential, and possibly new piston rings. Please tell me through the columns of the Readers' Clearing House who has the old Kirk plant or where the motor is made; also who makes the transmission and chassis.—R. D. Macdonald.

Write the Consolidated Motor Co., 955 Kirkwood avenue, Toledo, O.

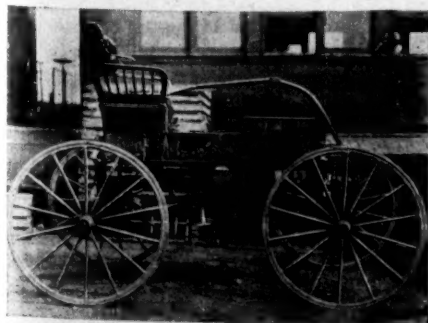
FOUR-WHEEL DRIVE

Chicago—Editor Motor Age—While traveling recently in Missouri I chanced to see one of those blacksmith shop automobile products that never fails to arouse interest and wonder, and having my kodak at hand I was able to get a couple of views of it. Please note the front axle detail. As near as I can figure it the maker has a differential on both front and rear axles giving a four-wheel drive. As indicated in one of the views the motor is carried beneath a small bonnet in front and on the front end of the crankshaft is a bevel gear meshing with another bevel on the top of a short vertical shaft. On the bottom of this shaft is a much larger bevel meshing with the large bevel gear carrying the differential on the axle. In the side view of the little machine can be seen driveshaft to the back axle, which, to all intents, has driving connection with the back axle through bevels and a differential! The steering lever is a joy to behold and let me ask you not to overlook the starting crank, but in spite of all these the machine runs. A neighboring freight agent told me that the owner used it every day in his business. I saw it running myself. Incidentally I heard it. I think I could have heard it if I had been 3 miles away. Horns or sirens are not required.—J. W. T.

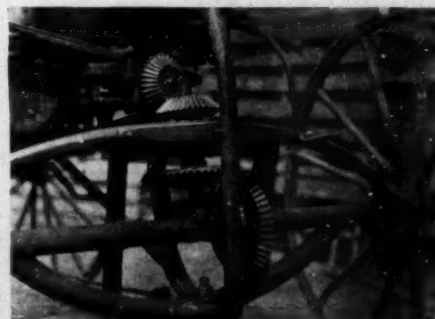
STEAM PARTS

Dugger, Ind.—Editor Motor Age—Can you inform me through the columns of the Readers' Clearing House where I can procure supplies for a Mobile steam car? I particularly want copper boiler tubes, tube expander and a firepan. The tubes measure 7/16-inch inside diameter. If there is a house that can supply my wants please give the address.—O. M. Anderson.

Charles E. Miller, 99 Reade street, New York, or the A. L. Dyke Auto Supply Co., Olive and Walton streets, St. Louis, Mo., would be likely to have such parts if they are to be found. Should neither of these well-known supply houses handle them or have some in stock, it would be well to write some of the present makers of steam parts for motor cars, as they may know where such may be obtained if they themselves have not any in stock.



"MISSOURI" FOUR-WHEEL DRIVE



"MISSOURI" FRONT-AXLE DRIVE

THE REALM OF THE COMMERCIAL CAR



IN LONDON THE MOTOR BUS REACHES PLACES WHERE THE TROLLEY IS FORBIDDEN



A very few years engine traction will have been entirely abandoned in favor of motor traction in all large cities and towns, and all short-distance freight traffic now conducted by rail, electric car and water will also have gone over to the all-conquering road motor. In New York, Chicago and other great American cities, in London, Liverpool, Glasgow, Belfast, Cardiff and other British cities, in Paris, Berlin, Vienna, troubled St. Petersburg, Milan, Madrid, Lisbon and other European cities, in Cairo, Cape Town, Melbourne, Wellington, Montreal, Mexico, Lima, Yokohama, Canton, Singapore, Bombay and Calcutta the passenger and freight road motor is ousting all other transport systems and bringing increased business and prosperity to its users.

Year by year the volume of road traffic in cities and large towns speedily increases, but is always inadequate to meet the demands made upon it. During the past few years the conveyance of passengers by road has been facilitated by the introduction of electric tramways or trolley lines and to some extent parcels are carried upon the cars. The initial cost of construction, however, on the cheapest—the trolley—system is so great as only to justify the outlay where an immense passenger traffic can be relied upon such as in the congested streets of the capitals of the world. The immobility of the electric car as well as the heavy initial outlay offers many obstacles to the adequate provision of traveling facilities at the disposal of the public to any particular place distant from the line of tramway. Until quite recently it was impossible to find a quicker method of conducting passenger traffic by road than is offered by electric or cable cars. The distance covered by either system is naturally circumscribed by the ex-

cessive cost of constructing the permanent way, the interest on capital expenditure alone practically absorbing every cent of otherwise profit for several years on small undertakings. These failings have not prevented investors sinking money in electric roads although it is apparent that every cent sunk into the track is dead capital and can never be revived. The permanent ways of electric systems are valuable assets only until such time as the tracks require reconstruction and the period which may be allowed to lapse between original construction and reconstruction is not yet quite clear to electric traction engineers themselves. So much depends upon the cars and the other traffic using the road.

Some system of road transit is urgently required in very populous districts well supplied with long-distance traveling facilities in order that persons may speedily travel on short journeys, nearer than train or probably electric cars can take them without the necessity of walking or using other means of conveyance. Populous districts distant from each other and having

no cheap and adequate means of communication by road also require such facilities. There are many such places in the United States. Many towns not now connected by rail or having other means of communication will welcome facilities of this kind and take up bonds in the undertaking and grant concessions and subsidies. But the services cannot be conducted by electric roads for the reasons stated.

Freight is seldom carried by trolley cars and short-distance railway rates for the carriage of goods are very heavy. Railway transport necessitates much risk of damage and waste of time and trouble by the requisite loading and unloading of road vehicles and railway wagons, thereby discounting any advantage gained by saving of time over other systems while actually in transit on rail. The time gained as a matter of fact is often infinitesimal where the period occupied in conveying the goods or material from the consignor to consignee is taken fully into consideration.

In many parts of the world traction engines have for years past been used for the conveyance of freight and passengers. Al-



AUTO-MIXTE GASOLINE-ELECTRIC BUS WITH TWO COMPARTMENTS

MOTOR TRANSPORT VS. STEAM, ELECTRIC, CANAL AND EQUINE SYSTEMS.



THIRTY-FOUR PASSENGER BUS USED IN LONDON, PARIS, ROME AND EDINBURGH

though cheaper than railways traction engines are slow and cumbersome and not much more speedy than transport on canals. The traction engine has a sphere of usefulness quite unique in opening up undeveloped countries. Its ponderous bulk enables it to make roads for lighter traffic by merely passing to and fro over any fairly firm ground a few times. Where the soil is light the traction engine is the most economical means of bringing up materials for road construction—consolidating the metal as does a roller after the stones have been spread. The road of course is always prepared a few yards in advance of the traction in order to permit of its having free passage without fear of being bogged. The surveyor of Bloemfontein, South Africa, it may be recalled in this connection, visited the British general a few days after the occupation of the city by the British army in the Boer war and beseeched him to stop the passage of the traction engines as they cut up the veldt and disfigured it. Within a fortnight he thanked the general for not acceding to his demand, for the traction engines had

made sound roads across the veldt for hundreds of miles where previously nothing but mere bridle-paths or unbroken trackless veldt existed.

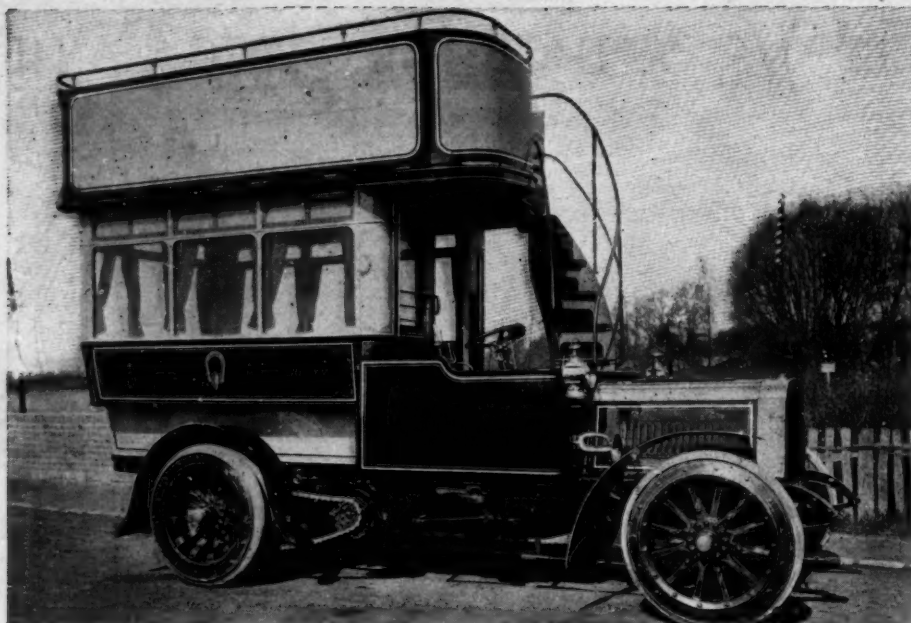
Canals offer the cheapest system of transporting freight where a journey of any length is necessary and electric tow-path haulage is used as on some French, Belgian and German canals and in the Erie canal trials of 1903. Whatever system or canal traction is used much time is lost as on railways in transit and much trouble is expended in conveying goods to and from the barges and loading and unloading the vessels and vehicles required to convey the freight to and from the canal. The necessity therefore of a system whereby freight and farm produce can be rapidly and economically transported from dock, factory, warehouse, farm, shop, quarry or mine to retailer or consumer, or from retailer to purchaser, has been for many years urgently felt.

The solution of the trouble and expense of time and dollars attending bad and inadequate transport of freight or passengers by road, rail or water is to be found

only in the use of the road motor. The successful construction and use of motor buses carrying up to forty passengers each and more if local regulations permit and the astonishing financial success attending the running of such vehicles in all parts of the world provides a perfectly profitable mobile and on the whole far more speedy means of traveling by road than electric lines afford or railways—electric, underground or overhead provide—a means which 15 years ago was deemed generally impracticable. Motor buses and sight-seeing wagons do not require an enormous expenditure of from \$30,000 to \$100,000 per mile on permanent way construction where roads such as exist in most large towns may be used. The vehicles can be run at fares as low as any electric or railroad system. In London the average motor bus fare works out at 1 cent per mile. The motor bus does not interfere with any other vehicular traffic in congested thoroughfares, but on the contrary tends to accelerate other traffic by its superior speed and mobility and by the fact that two motor buses easily perform the work of three horse buses. It takes three motor buses usually to perform the work of two full sized electric cars, but in very congested streets the motor buses have the advantage of speed, and one motor bus will do the work of one electric car. Should by any accident a motor bus go wrong it does not hold up the entire service as does the breakdown of an electric car hold up practically the whole of the car traffic on its particular system. There is more ignominy in an electric car being bunted or towed home than in a motor bus being assisted to the garage. The motor bus can be diverted to meet the holiday traffic or on other occasions on which a temporary rush of passengers by road is created such as to a baseball match. The motor bus moreover has the advantage



BÜSSING, GERMAN, SINGLE-DECK GASOLINE BUS



BRUSH ONE-MAN GASOLINE TRUCK USED IN BRITISH POTTERIES

of equine traction at all times owing to its hygienic qualities, for the fumes of unburnt gasoline and burnt lubricating oil are innocuous although perhaps unpleasant, whereas the excrement from horses healthy and unhealthy bear always countless millions of various disease germs to be disseminated in impalpable dust into the lungs of human beings. As already pointed out, the motor vehicle is being extensively used in every country in the world, from Timbuctoo, Africa, where the French government has a motor mail van, to Patagonia, South America, where a mine has just been equipped with three heavy motor trucks to carry ore to the coast.

There are now therefore ready at hand means for carrying passengers and freight by road from point of departure or of dispatch to destination more expeditiously and safely than either railways, electric roads, horses or canals afford. There is only one fault of every other system of traction found in an industrial motor vehicle—it requires to be kept at work in order to be profitable to its owner—well cared for, it is a willing slave—neglected, it will quickly go on strike until it receives the attention it demands and should have. The motto of the industrial motor vehicle is very similar to that of good Queen Bessie's cannon on Dover castle, England: "Load me well and keep me clean and I'll send a ball to Calais—France—Green." It is a lie, for Calais Green is 21 miles distant across the English channel. The industrial motor vehicle, however, would be absolutely truthful in saying: "Load me well and keep me clean and I'll run all day from morn till e'en, and all night long as well."

Having stated—but not at too much length—the advantages of motor road traction, we will now proceed to cite a few facts in support of such statements.

First of all, we will deal shortly with

railroad rates. It is impossible to give details affecting every class of freight, as the rates vary so much for certain special goods. Taking the average rate per ton mile for ordinary freight, we find them as follows:

For 10 miles, 4.80 cents per ton per mile.
For 15 miles, 3.72 cents per ton per mile.
For 20 miles, 3.40 cents per ton per mile.
For 30 miles, 3.20 cents per ton per mile.
For 40 miles, 3.04 cents per ton per mile.

These rates are based on an average of the world's rates—in every country they are pretty much the same.

In addition to these rates, however, must be added the cost of cartage at both ends to and from the railroad station where there is no private siding or to or from the station if the freight is loaded on siding at the point of dispatch or destination, as the case may be.

The cost of constructing a railway varies from \$25,000 per mile upward, according to the nature of the district it will traverse. The figure stated would apply to the back-country of any American state; in the cities the cost goes up to over \$5,000,000 per mile. The price of land is not included in the \$25,000. The lowest fares charged on electric cars is 1 cent per mile. The cost of constructing electric roads is approximately as follows, based on a population of 228,000 and 17 miles of double track and 3 miles of single track:

Cost of construction, electrification, power house, etc., 140 cars.....\$3,294,925
The number of passengers carried in a year is 26,000,000 and the car miles run 3,342,000.

EXPENDITURE ANNUALLY

	Average per car mile cents
To traffic expenses—	
Superintendence, wages of motormen, conductors and other traffic employees, cleaning and oiling cars, cleaning and sanding track, fuel, light and water for depots, ticket check, including wages inspectors and clerks, uniforms and badges and miscellaneous	5.784
	\$201,408.77

To general expenses—	
Salaries of general officers and staff, store expenses, rent, routes and taxes, printing and stationery, fuel, light and water for offices, law charges, compensation for accidents and fire and other insurance, miscellaneous	1.248
	43,407.00

For repairs and maintenance—	
Permanent way, electrical equipment of line, buildings and fixtures, workshops, tools and sundry plant, cars, other rolling stock, miscellaneous equipment	1.122
	39,053.29

To power expenses—	
Salaries and wages, fuel, water, oil and work, miscellaneous supplies, repairs to steam plant, do electrical plant, repairs to power station building	1.012
	35,270.25

Total amount of working	9.450	\$329,025.79
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Estimate future increase in permanent way repairs..	0.284	9,886.50
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	9.450	\$329,025.78
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Interest on capital.....	3.136	109,132.75
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Sinking fund	1.532	53,320.00
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Renewals of permanent way, 1/4 each 6th year, 1/2 each 12th year and 1/2 every 18th year.....	1.272	44,290.00
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	15.390	\$535,768.54
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Average per car mile cents

Income—	car mile	
By passenger traffic, 25,890,030 passengers carried	cents	
Sundry revenue, advertising on cars, etc.....	15.526	\$540,555.50
Rents of shops and cottage property	00.158	5,500.00
	00.048	1,648.00

	15.732	\$547,703.50
Less expenditure	15.390	535,768.00

Profit on one year's working	00.342	\$ 11,935.50
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Each of the 140 cars carried forty-eight passengers and averaged 23,871 miles per year, only 79.57 miles each per day of 300 days per annum. Each car carried 185,714 passengers during the year, or 619 daily.

The cost of running motor buses, each seating thirty-four passengers, to give the same service as the electric system mentioned will approximate as follows, based on the figures obtained by the writer during a test observation as to mileage and receipts of Vanguard buses and the cost generally of running and maintaining motor buses in London and the British provinces:

Number of days of test observatory....	73
Total receipts during that period.....	\$2,609.50
Average daily receipts.....	\$35.78.76
Total mileage during test period.....	9,416
Length of each return journey.....	11
Total daily return journeys.....	856
Average number of daily return journeys	11.72
Average daily mileage.....	128.92
Average receipts per return journey...	3.4.64
Average number of passengers per return journey	120
Average receipts per passenger.....	\$0.2.42
Approximate receipts per car mile...	\$0.26.60

From these figures it will be seen that the receipts per passenger per car mile are very high and the receipts per car mile are nearly double those of the electric lines. The motor bus, it must be remembered, carried fourteen passengers less than the electric car. The mileage of the motor bus is greater than that of the electric car by nearly 50 miles per day and the number of passengers per day is also

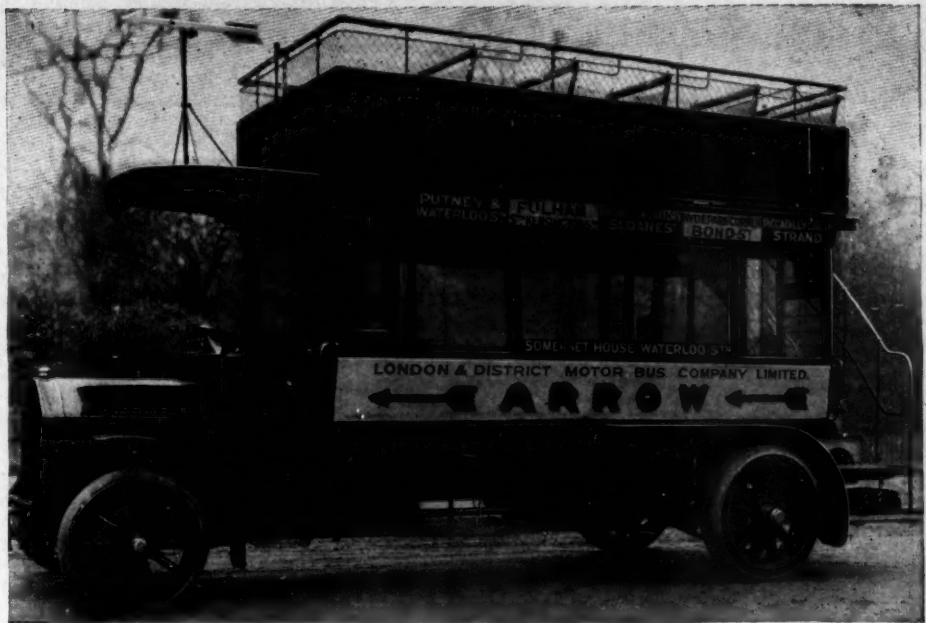
greater by 787, more than double. On this basis, therefore, one motor bus is equal to two electric cars. Taking, however, a basis of 140 motor buses—one to each car displaced and running only 100 miles per day of 300 days per year—ample allowance is made for periodically docking each vehicle for overhauling and retiring without bringing its number of passengers carried below 619 per day. Not one of the 140 buses need be set apart as a spare, because with proper management a sufficient reserve of vehicles will always be in dock ready for the road, having just come from the hands of the mechanics. The motor bus balance sheet will come out in the following terms.

Capital account—	
140 cars at \$4,250 each.....	\$595,000
Car depot and offices.....	100,000
	\$695,000
Equipment of workshops.....	50,000
	\$745,000

Expenditure— To traffic expenses:	Average per car mile cents	
Superintendence	0.6	\$ 2,575
Wages of motormen and conductors	3.22	135,595
Wages of other traffic employes	0.30	12,845
Oiling cars	0.46	19,495
Ticket check, including wages, inspectors and clerk.....	0.24	10,395
Uniforms and badges.....	0.13	5,840
Cleaning and fuel, light and water for depots and miscellaneous	0.26	27,850
	4.67	\$214,595
To general expenses:		
Salaries of general officers and staff	0.11	\$ 4,700
Store expenses	0.7	3,160
Rents	0.3	1,260
Rates and taxes.....	0.46	19,385
Printing and stationery.....		1,315
Fuel, light and water for offices	0.4	230
Law charges		140
Compensation, fire and other insurance and miscellaneous	0.9	38,970
	0.80	\$ 69,160
Repairs and maintenance.....	0.91	38,295
Power expenses—Petrol.....	2.00	87,500
Total working expenses...	8.38	\$409,550
Interest and sinking fund on capital	0.88	37,250
	0.26	\$446,800
To renewals:		
Tires	4.00	168,000
Vehicles, 15 per cent per annum	2.66	111,750
	15.92	\$726,550
Income:		
By passenger traffic, 140 vehicles running 100 miles per day for 300 days per year—4,200,000 car miles at 26 cents per car mile.....		\$1,092,000
Advertising on cars and other sundry receipts, yielding 0.26 cent per car mile		10,000
		\$1,102,000
Annual charges and expenses.....		726,550

Annual profit \$ 375,450
Equal to 8.93 cents per car mile.

It will be noticed that an allowance is made in the motor bus balance sheet of 5 per cent interest on capital. This of course will be an unnecessary allowance should a private company and not a municipal authority operate the buses. For this reason also an allowance of \$590,000, the net purchase price of an old electric undertaking superseded by the buses, has been excluded in the motor bus balance sheet. It can be added, however, should it be desired to place the motor bus undertaking on the same footing as the electric



BEAUFORT THIRTY-FOUR-PASSENGER GASOLINE BUS WITH 30-HORSEPOWER MOTOR

tramways. Only the sum of \$29,500 for interest and sinking fund need then be added to the motor bus annual expenses, equal to \$0.070 only per car mile. Figures of actual running of small motor bus services as well as statistics relating to cost will be given in another article.

NEW SYRACUSE ENTERPRISE

The Auto Express Co., of Syracuse, has been formed to do a delivery, baggage and truck business. Two Logan delivery cars are now in commission and a truck has been ordered from the same company which will be used for sight-seeing purposes and also for heavy truck work, having a combination top. Two 2-ton trucks will be ordered for suburban business. Those interested in the company are A. W. Johnston, manager of the Red Line Messenger Service, and Louis J. Lynn, of the Syracuse Trust Co. While the cars have not been running long enough to give a definite statement of their work, Mr. Johnston says from what they have already done, it is proved one car will do the work hitherto done by three horses and that the expense of running one car, including the driver's salary, will be 20 per cent under the cost of running one wagon with two horses. The two cars have a 1,500-pound capacity, are 10 horsepower, gasoline and air-cooled. Mr. Johnston solved the problem of drivers by having two of the oldest and most trusted messengers who had been in his service in the Red Line concern for 4 years, taught to run the cars by a representative from the factory, who spent a week giving them instructions. The boys have no trouble in handling the cars which make from 18 to 20 miles an hour. A call was recently sent in from 507 Willis avenue, where a trunk was to be taken to the station. The car went out and back in 22 minutes, a total distance of 7 miles. The manager of the company figured it out that even a single call at a long distance

like this meant a profit. Mr. Johnston said that the biggest profits are not to be made delivering for big stores as they usually have it done so cheap there is nothing in it. The smaller stores and baggage business are what he relies on. He has made arrangements with the Auburn & Syracuse railway to take care of the baggage going from that line, also with the St. John's Military school at Manlius. When the people know that such a concern is in existence and that they can get prompt service, it is expected that it will have all the business it can attend to. The company has sent out several thousand cards and letters, informing the merchants that they are ready to do business and responses are coming in daily.

The Red Line Messenger Service, of which the Auto Express Co. is the outgrowth, started in doing business in Syracuse 6 years ago and has rapidly developed into a strong and substantial concern. There is at present no sight-seeing company in Syracuse, although there are plenty of things to see and many beautiful rides in the vicinity. The Auto Express Co. expects to charter the car to parties who wish to drive out into the country or to take one of the many beautiful trips around the salt city. A great harvest for such an enterprise is the New York state fair, the grounds of which are located about 3 miles from the center of the city. Last year a rubber neck car was shipped from New York for the occasion and it had all the business it could do. Moderate enthusiasts affirm that the bus business at the time of the fair and during much of the remaining season is sufficient to warrant the operation of a system during the entire summer season. For renting purposes the field for a rubberneck wagon is vast, and the revenue coming from private parties would undoubtedly do much to swell the general coffers of the company operating the line.

FROM THE FOUR WINDS

Bay Staters Growing—Fifty-four members are up for election for membership to the Bay State Automobile Association at the next meeting of its directors. The new club, since its opening, has proved an attractive point to the eastern motorists.

Another Good Roads Spike—Buffalo contractors have a large force of men at work macadamizing the Griswold street road at Middleport, N. Y. The work will cover about 3 miles. This road is an important highway south of Middleport and leading from that place to Wolcottville, N. Y., and Akron, N. Y.

Car Thieves Active—Automobile thieves are unusually active in Buffalo these days. The latest victim was Porter Norton, of this city, who left his Pierce Stanhope standing in front of the University Club. Mr. Norton was in the club an hour and when he came out his machine was gone. The police were notified and they are now trying to locate the car.

Hoosier Motorphobia—Farmers are adopting a menacing attitude toward automobiles in Indiana and drivers of motor cars have been compelled to appeal to city and county authorities for protection. Piling logs in roadways, waving lanterns across roads at night and compelling drivers to stop at the point of shotgun or revolvers are a few of the tactics followed.

Workhouse for Scorchers—Unless the supreme court reverses the decision of Judge C. L. Smith, of the municipal court of Minneapolis, John H. Queal, Jr., son of a Minneapolis millionaire, and his chauffeur, George E. Heaton, will have to pass 5 days in the workhouse for scorching through the streets of the city. This is the sentence imposed, but Queal appealed the case.

Kick On Gasoline Quality—Complaints are coming from motorists who tour Long Island over the grade of gasoline now on tap in that locality. This is the substitute put out when the Standard Oil Co. abandoned the 76 gasoline some time back. It sells for 16 cents a gallon and the cry is that it will not vaporize properly and that in consequence many cars have been stalled on the roads.

Hartford People "Johnny Wise"—The Automobile Club of Hartford is setting an example other clubs could profit by in following. It has secured a chain of attorneys through the state which will work under the supervision of a Hartford firm. Club members will be defended by the Hartford lawyers, the rates being fixed as follows: In the city of Hartford, \$5; outside of city but in Hartford county, \$15 and expenses; elsewhere in state, \$25 and expenses. The club has prepared a printed list of other lawyers in twenty towns and villages outside Hartford who will defend

members for \$10 and expenses in each case and also arrange for bail when necessary. The club, with the list, gives a synopsis of the Connecticut automobile law.

Wants Drive Opened—The Kansas City Automobile Club at a recent meeting decided to protest against the rule which keeps motor cars off the cliff drive, one of the city's most picturesque drives. The park commissioners are to be asked to throw the drive open to motorists one day in the week.

Another "First Car"—Another claimant for having built the first automobile in the country has appeared, this time at Indianapolis. C. B. Black, a carriage manufacturer, is exhibiting a 2½ horsepower runabout, which he says he built in 1891. It can attain a speed of 12 to 14 miles an hour and is still in active service.

After a Fine Road—The good roads committee of the board of supervisors of Erie county, N. Y., has asked the New York state engineer to build a portion of the Clarence-Hunt's Corners road at a thickness of 8 inches. This highway will be an ideal one for automobiling. The road is 4¾ miles long. The sum of \$41,000 was appropriated for the building of a good roadbed in this highway.

Jersey Registration—J. B. R. Smith, state commissioner of automobile vehicles in New Jersey, says 9,000 cars have been registered under the new law and about 16,700 under the old one. About 500 motor cycles are on the books. Of the 16,700 cars previously registered one-fourth of them are now out of commission, which brings the number of New Jersey automobiles down to 12,000, one-half of them being owned in the state. Smith figures that at the end of the year there will have been 12,000 cars registered under the Frelinghuysen law.

Seeing Is Believing—The Canal Quarry Co., of Buffalo, has begun work on the improvement of the North Transit road from Lockport, N. Y., to Erie county, N. Y., at which point it joins with a finely improved stretch extending into Buffalo. The beginning of the improvement marks the realization of the dreams of many automobilists. For years the road had been the worst section of highway in the state. Resolutions presented to the board of supervisors of Niagara county to have the road improved were killed time and again by supervisors representing other parts of the county. Last year, however, the board was given a jaunt over the old road in automobiles furnished by Buffalo and Lockport enthusiasts. The tourists found the highway was much like the time-honored "rocky road to Dublin." They returned to Lockport tired and sore and adopted a resolution calling for the improvement of

the road under the Higbee-Armstrong state law, by which the state pays half, the county 35 per cent, and the abutting property owners 15 per cent of the cost of the improvement.

Coöperative Garage—A number of residents of Nicollet street, Minneapolis, are maintaining a coöperative garage for their own use. They have built a fireproof garage which is up to date in every particular and has accommodations for seven automobiles. Among those who are interested in the scheme are H. E. Wilcox, Dr. A. E. Wilcox, John Shaw, Sewell Andrews, Denman Johnston and George F. Roberts.

Words of Wisdom—Mayor Adam, of Buffalo, said recently: "Automobilists should take good-naturedly whatever the police do toward automobile traffic in Buffalo. The officer may stop them to verify their numbers and see that the correct number is displayed. The time has come when the drivers of automobiles as well as of all other kinds of vehicles must understand that the safety of the people of Buffalo is paramount to every other consideration."

Fetch's Work—Tom Fetch's mileage on the recent Glidden tour when he acted as patrol in a Packard car, was 2,280 miles. The regular route was 1,143, so it will be seen just how much work Fetch had to do. The item in several papers to the effect that Tom declined to help the six-cylinder Pierce when it was ditched on the last day of the run is denied. Tom and the people with him got out of the car and helped the Pierce back to the road. The Pierce car did not have sufficient gasoline to get up the hill, and Tom had only enough to get himself to Bretton Woods, and declined to leave himself helpless and let them go ahead.

Welcome for Flinn—Ten big touring cars loaded with Pittsburg admirers of automobiling sped out to Greensburg Monday to welcome Phillip S. Flinn and his wife on their return from the Glidden tour. The party was back in the city with the perfect-score car as 6:35 in the evening and was met by dozens of motorists, who gave it a right royal welcome. The odometer on Flinn's big car showed a total of 2,240 miles. The Flinn touring party was composed of Mr. and Mrs. Flinn, Mrs. George Albertson and Thomas F. Dunn, the chauffeur. It left Pittsburg July 8. Among those who escorted the victorious party into the city were: E. J. Kent, first vice president of the Automobile Club of Pittsburg; George Albertson, with a load of newspaper men; Arthur Banker, of the Banker Brothers company; George Goettmann, A. P. Moore, George B. Moore, J. Weldman Murray, Robert McCurdy, P. S. Coombes, C. H. Dixon and Humphreys Miller.



COMPETITION CONFETTI



European Circuit Date Fixed—June 3, 1907, is proposed for the European circuit, and this date will be submitted at the salon congress in December.

Hill Climb Off—The Consuma hill-climbing contest in Italy has been declared off this year, the number of entries being insufficient to insure a success.

Queer Coincidence—In the ill-fated Paris-Madrid race, in which the Renault team was so well placed at the time when Marcel Renualt was killed, the car of Louis Renault carried the number 3, while in the grand prix Szisz's car bore the same number.

France's Big Tour—The tour around France will be an assured success, it is said. No expense has been spared. Perhaps it will be the biggest thing ever undertaken as a tour, in view of the 3,500 miles distance and the large number of cars engaged. Sixty cars have already entered.

Austria Gets Cup—The international cup of the French Motor Cycle Club was raced for by Austrian, British, French and one German motor cycle. The winner was Nikodem, on the Austrian Puch, who covered the hilly circuit of over 156 miles in 13 minutes over 3 hours, at an average speed of 48 miles per hour. The three French cycles came to grief on the descents and two of the three drivers were injured. Collier on the English Matchless came second, 25 minutes after the winner. A German Progress cycle was third. The cup will of course remain in Austria.

Row Over Road Race—The calling off of the Florio race in Italy because the government would not give military protection has caused all sorts of trouble. At a concert in Brescia the crowd started rough-house because the Florio cup event had been abandoned and called for the resignation of the minister of war. The mob attacked the military band and several people were wounded in the melee. The municipality of Brescia has resigned in a body because of the outcry.

Matheson Racer—Details of the construction of the Matheson Vanderbilt racer are given as follows: Name of driver, Ralph Mongini; name of designer, Charles R. Greuter, M. E.; weight in pounds, 2,200; horsepower, 60; bore and stroke of cylinders in inches, 6 by 6; revolutions per minute, 1,200; wheelbase in inches, 112½; tread in inches, 56; transmission, sliding gear; ignition system, make-and-break, with magneto; carbureter, multiple port; clutch, multiple disk; gasoline capacity, 30 gallons; shock absorbers, Hartford-Truffault; tire equipment, Diamond, 34 by 4 front, and 34 by 4½ rear. Style of cars made for sale by entrant, 30-35, 40-45, 60-65 horsepower. Every '07 Matheson

will follow for next year the principles used in the racing car, which is the regular stock model and not built especially for the Vanderbilt race.

Big Hill Climb in Austria—Austria will hold its Semmering hill climb this year on September 23, and the classes include touring cars, racers and motor cycles.

Not in Derby—The H. H. Franklin Mfg. Co. wishes the announcement made that the rumors that Franklin cars would be entered in the Rochester road race are without foundation and that no entry will be made.

Germany's Big Event—Germany held on July 13, 14 and 15 a touring contest for four classes of cars. The distance covered in 3 days included Hanover, Frankfurt and Cologne, a total of 560 miles. Seventy-nine cars entered, of which sixty-one were German makes. The prizes amounted to \$4,000 and a small silver cup for each finishing car.

Woman Chief Winner—Mrs. Heinrich Opel, driving a 26-horsepower Opel, carried off the honors in the 3 days' West German tour July 13, 14 and 15, from Billefeld to Hanover, to Frankfurt, to Cologne. She took the Imperial A. C.'s \$750 first prize as well as the women's prize valued at \$250. Of the three women of the eighty competitors each one won a prize.

French Club Balks—The French club, having proposed a control over the regulations of automobile events, after examining the Belgian criterium rules, found that the contest was purely a speed event duplicating the Ardennes circuit. The club refused to O. K. the rules and published its decision for French constructors to note. The proposition of the French club was made at Pont de Gennes on June 25 and received international support, for the idea is reciprocative from all but the Italians, who did not care for their events to be nosed over by the French or other foreign clubs with a view to their vetoing.

Ardennes Circuit Plans—The small circuit, as it is called, will be chosen for Belgium's Ardennes race. This is due to the rather limited number of cars entering. As soon as it became known that the Brescia circuit was off, every effort was made to induce Italian constructors to enter their cars in the Ardennes race. The results have been negative, however, for inasmuch as the Brescia circuit was a month behind the Ardennes date, the cars were not ready. One and all, therefore, have refused to entertain the proposal. The small circuit for the Ardennes was used first in 1904, and passes by Bastogne, Longlier, Offaing, Léglise, Habay la Neuve, Martelange and Bastogne, giving a total

distance of 83 miles. The circuit will be covered seven times and the exact distance covered will be exactly 600 kilometers, making 375 miles in all.

Liedekerke Cup Date—The Liedekerke cup will be contested August 14 over the Ardennes circuit, the day after the race itself. It may be termed a speed contest for touring cars.

Wastes No Time—The Maxwell-Briscoe Motor Co. has taken time by the forelock and has already engaged its training quarters on the Jericho turnpike at Mineola, in the belief that the 1906 contest will be run over the course used last year.

Maxwell Racers Progressing—Steady progress is being made on the two Maxwell racing cars which are being constructed as candidates for the American team in the Vanderbilt. The motors for both machines are almost completed, work on the twelve-cylinder engine being in an especially advanced state.

Belated Vanderbilt Entries—A report has found its way into print that on his return to this country this week Chairman Thompson, of the racing board, will bring with him the entries of two Napier cars for the Vanderbilt race by the Automobile Club of Great Britain, to be piloted respectively by W. Clifford Earp and Arthur Macdonald, both of whom have raced Napiers with success at Ormond. These nominations are said to be the result of conferences in London by Mr. Thompson on his way home from the grand prix. Since the entries for the Vanderbilt race closed on July 1 it would seem necessary to make the two Napiers eligible that not only the commission vote in favor of their acceptance, but that all the entrants consent as well.

Row Over Herkomer—Although many weeks have elapsed since the Herkomer tour was finished and the awards made, yet the dispute regarding the fairness of the awards still rages undiminished in European automobile circles. The speed curve which was adopted by the committee is criticized as being unjust and especially hard upon high-powered cars. This view is supported by the results of the tour judging from the awards. Many spirited and bitter articles are appearing daily, not only in the sporting press, but in the foreign technical and daily papers. Most of them put forth the view that the small cars were favored to an overwhelming extent. The committee is handled severely by most of the writers, yet it is expected that no change will be made in the awards and that the committee will keep a stiff necked attitude regarding the present year's tour, with the probable modification of a very considerable number of the rules for the 1907.



CURRENT AUTOMOBILE PATENTS



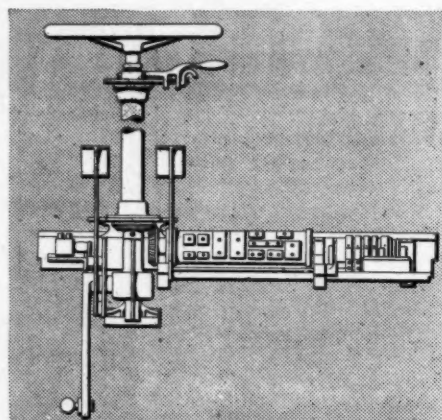
Mechanical Lubricator—No. 827,402, dated July 31; to A. A. Stetling, Madison, Wis.—The lubricator, now known as the Madison-Kipp, pumps oil from a self-contained reservoir by means of a vertical plunger that besides having an up and down movement has a part rotary movement at the same time. The lower end of this plunger enters a cylindrical bore in a cubical block carried in the base of the oil reservoir. This bore has two openings—one at the left leading to the duct connecting with the bearing and the other at the right communicating with the oil reservoir. In the plunger's lower end is a central bore with a lateral opening. On the up stroke of the plunger this opening registers with the passage from the oiler and oil is sucked in, filling the bore in the plunger. On the down stroke the plunger is first of all partly rotated so that the lateral opening registers with the outlet passage. As it descends the oil is forced out of the bore and space beneath it to the bearing.

Divided Wind Shield—No. 827,377, dated July 31; to G. B. Levy, Chicago, Ill.—Of the many styles of glass wind shields carried vertically above the dash of an automobile few are of the type in which the top half can be removed and lowered beside the bottom half, thus providing a wind shield half the height of the ordinary. The inventor accomplishes this by carrying the upper and lower halves of the shield between vertical end guides channeled by means of inturned flanges. The upper half of the shield has its ends provided with flanges of reduced cross section, enabling it to be moved rearwardly and dropped beside the lower half.

Sliding Gear Transmission—No. 827,454, dated July 31; to H. W. Leonard, Bronxville, N. Y.—Both main and countershaft are in the same horizontal plane. On the countershaft are four gears in sets of two at each end, the forward set rigid with the shaft and the rear pair adapted to slide on a squared portion of it. On the mainshaft are four gears and a clutch system to give direct drive. Each shaft has a bearing in the center of the case and one at each end.

Two of the gears on the mainshaft are adapted to slide for giving slow speed, reverse and direct drive and the sliding pair on the countershaft give the second and third speeds ahead. The dental clutch mechanism for direct drive, is in the center of the case instead of one end.

Electric Vehicle Control—No. 827,687, dated July 31; to H. Ducase, Paris, France—The patent, illustrated herewith, refers to a method of carrying the commutator and resistances needed for an electric vehicle on a cross piece of the frame immediately beneath the base of the steering column and carrying the controller handle and other starting mechanisms on the



DUCASE'S ELECTRIC CONTROL

steering column, making the control identical with that of a gasoline machine.

Windowed Spark Plug—No. 827,108, dated July 31; to W. W. Morse, West Orange, N. J.—The portion of the plug entering the cylinder head is a tubular piece within which is the electrode conducting the current into the cylinder. The bottom of this tube is open and is made to receive a threaded plug in the center of which rises the other electrode so positioned that when the plug is in place the two electrodes are properly related to each other. In the sides of the tube opposite the space between the two electrodes is a series of small openings, or windows, through which the flame at the time of ignition spreads.

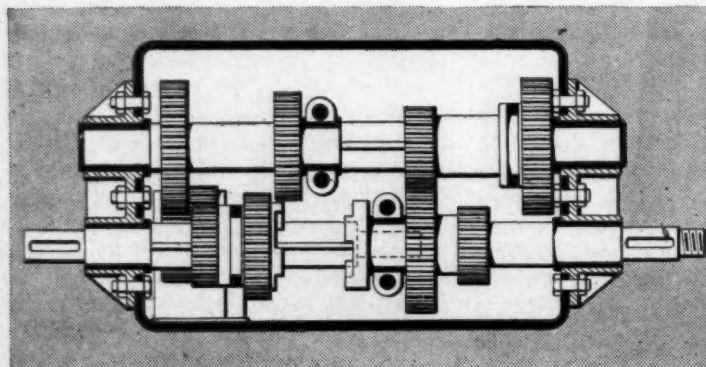
The housing of the points this way and the presence of windows creates a current of air around the electrodes, tending to keep them clean.

Friction Transmission—No. 827,117, dated July 31; to W. von Pittler, Berlin, Germany—The shaft from the engine carries a sliding friction wheel which rests against the side of a large friction cone carried on a shaft lying at an angle to the motorshaft. The friction wheel when moved along its shaft contacts with the friction cone at points where its diameter is small or great, thus giving variations of speed. For reversing purposes arrangements are made for an interposed friction wheel between that on the motorshaft wheel and the friction cone.

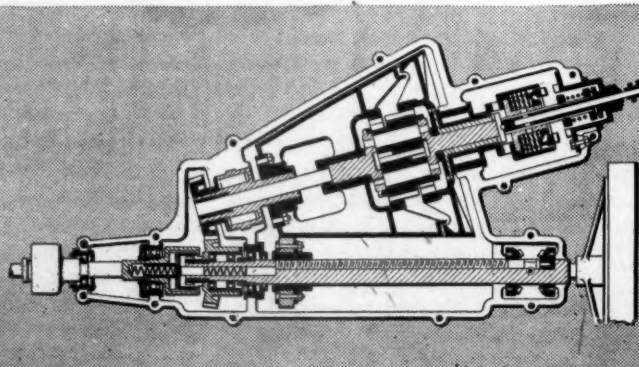
Floatless Carbureter—No. 827,094, dated July 31; to W. W. Grant, Brooklyn, N. Y.—The carbureter is a horizontal tube with a central expansion. In this expansion is a short vertical cylinder with ports for registering with the inlet entrance at one side and the exit at the other side. In the center of the cylinder is a spraying nozzle, the cylinder opening the air inlet port when revolved. The passage to the motor also opens the nozzle, allowing gasoline to flow. With every adjustment of the gas or air there is an adjustment of the nozzle.

Spring Hub—No. 827,494, dated July 31; to G. W. T. Akehurst, White Marsh, Md.—In the hub are two circular plates with circumferential abutting flanges, on the rim edge of which are sockets for the inner ends of the spokes. These plates at their central part are spaced from each other, forming a chamber of uniform width. A hub rests in this chamber. Between the channeled perimeter of the hub and the inner side of the plates' flanges rests a pneumatic tire.

Alkaline Battery—No. 827,297, dated July 31; to T. A. Edison, Llewellyn Park, N. J.—In this battery in combination with the electrodes and an alkaline electrolyte is a rubber insulator which is exposed to the action of the electrolyte but which is free from active or uncombined sulphur where by the formation of sulphides is avoided.



LEONARD'S SELECTIVE SLIDING GEAR TRANSMISSION



VON PITTILER'S CONICAL FRICTION TRANSMISSION



BRIEF BUSINESS ANNOUNCEMENTS



New York—William S. Bennet has been appointed receiver of the Motor Engine Co., of 15 William street.

Frankfort, Ky.—The Long Automobile Co., of Hopkins county, has been incorporated with a capital stock of \$40,000.

St. Paul, Minn.—A petition in bankruptcy has been filed by the Burdick Putnam Gasoline Engine Co., with assets of \$4,328.95 and liabilities of the same amount.

Newcastle, Pa.—The Standard Motor Truck Co., which is controlled by the Standard Steel Co., of Butler, will shortly commence the manufacture of street cars, and expects to have its first car on the market within 3 months.

Rochester, N. Y.—Plans are being prepared for a new automobile garage at 26 Plymouth avenue, to replace the one burned some time ago. The building will be built almost entirely of concrete. The total cost of the building will be \$15,000.

New York—A new automobile garage has been opened by Charles Strathmann at 165-179 East One Hundred and Twentieth street. The building has a floor space of 15,000 square feet. The old building will be used as a repair shop and also as a storage house for automobile supplies.

Hartford, Conn.—A certificate of incorporation has been filed by the Monson company of Hartford, which will engage in a multiplicity of enterprises, among others the manufacture of paper, silverware, tools, machinery, automobile and bicycle parts of all kinds, also to purchase and sell ice. The capital stock is given at \$50,000. The company will start with a capital stock of \$10,000. Incorporators, E. H. Warner, F. H. Williams, jr., and C. E. Ripley.

New York—A new six-story automobile garage, which it is said will be the largest in the world, is to be built at Broadway and Eighty-fourth street, at a cost of \$650,000. The storage capacity of the building will be 1,500 machines. The name of the company for which the garage is to be built has not yet been made public, but it is said that in addition to occupying the building itself, the concern will rent out space to smaller concerns. Frank M. Andrews is the architect.

Boston, Mass.—Frank J. Tyler, who is sole owner of the stock of the Morrison-Tyler company, has disposed of a controlling interest in the company to the Maxwell-Briscoe company, of Tarrytown, N. Y. A new corporation will be formed with a capital stock of \$100,000, to be known as the Maxwell-Briscoe-Boston Co. The company will continue to occupy the building at 121 Massachusetts avenue and the garage on Ipswich street. Mr. Tyler has been elected treasurer and general man-

ager of the new company. Among those interested in the new venture, in addition to Mr. Tyler, are Ralph F. Coburn, Arthur E. Adams, Lucius S. Tyler and Hiram E. Wever.

Hartford, Conn.—The Veeder Mfg. Co. is erecting a three-story office building at the corner of Sargent and Carden streets. The Veeder company will occupy the second and third stories, while the basement and the first floor will be given over to the Post & Lester company, dealer in automobile and bicycle sundries.

Chicago—The Chicago Automobile Mfg. Co., maker of the Chicago steam cars, now located at 4212 State street, is thinking of removing. A favorable location at Connersville, Ind., is under consideration, one of the conditions being that the inhabitants of the city subscribe for \$17,000 of the proposed stock, which will probably be about \$50,000.

Indianapolis, Ind.—The Gibson Automobile Co., formerly the Gibson-Short Cycle & Auto Co., has disposed of its bicycle department to the O. H. Westing Co. and will now devote all its attention to automobiles. An addition is being built to the company's garage at 238 Massachusetts avenue, which will be given over to the repair department, while the room formerly occupied by the bicycles will be devoted to automobile sundries and supplies. The



Kittery, Me.—Graves & Congdon Co.; capital stock, \$10,000; to deal in automobiles and appliances; incorporators, J. R. Graves, H. R. Jennings and H. Mitchell.

Boston, Mass.—Prentiss Motor Car & Supply Co.; capital stock, \$50,000; to deal in automobiles and supplies; incorporators, R. W. Gilman, L. O. Whipple and C. W. Davis.

Albany, N. Y.—J. & E. Homan Co.; capital stock, \$10,000; to manufacture gas and gasoline engines; incorporators, J. A. Homan, Eugene Homan and F. D. Homan.

New York—Lewis Power Co.; capital stock, \$40,000; to manufacture automobiles, railroad cars, etc.; incorporators, H. Oppenheim, F. Kopper, Jr., E. A. Weed and F. P. V. Lewis.

New Bedford, Mass.—North End Garage Co.; capital stock \$1,500; incorporators, D. J. Dominique, George W. Auger, M. D. Prevost.

Frankford, Conn.—Longest Bros., capital stock \$10,000; to deal in automobiles; incorporators, W. B. Longest, T. F. and C. F. Longest.

Chicago—Michelin Tire & Supply Co.; capital stock \$20,000; incorporators, C. C. Bradbury, William T. Jones and A. C. Courtney.

Albany, N. Y.—The Geneva Automobile Co.; capital stock \$15,000; to manufacture automobiles; incorporators, A. G. Lewis, L. G. Hoskins and John W. Mellen, all of Geneva.

Portland, Me.—Maine Elastic Tire Filling Co.; capital stock \$10,000; to manufacture filling for pneumatic tires; incorporators, J. B. Bodge and E. C. Hagge.

Gibson company is the state representative for the Marmon, Reo, Ford, Wayne and Premier.

Newark, N. J.—A Elliott Ranney & Co. have opened a branch agency for the Elmore at 237 Halsey street.

Middletown, N. Y.—Clark & Clark are the new proprietors of the Middletown Automobile Co., of 10 Henry street, the representative of the Maxwell.

Waterbury, N. Y.—John Eckhoff has enlarged his machine and blacksmith shop on Anthony street, and in addition to his former business will run an automobile repair shop.

Atlanta, Ga.—Application has been made for a charter for the Capital City Automobile Co., with a capital stock of \$10,000, with the privilege of increasing it to \$100,000. The company will run a delivery and transfer system, and will sell and hire automobiles. Incorporators, Ernest Woodruff, John E. Dickenson and Harvey Hill.

Long Island City, N. Y.—The General Vehicle Co., which was organized recently with a capital stock of \$1,750,000, has taken over the plant of the Vehicle Equipment Co. This company was originally incorporated in New Jersey, with a capital stock of \$400,000, which, when reincorporated in this state, was increased to \$3,000,000. The concern went into bankruptcy last spring.

Pawtucket, R. I.—The James Brown Machine Co.'s plant has been sold to a Boston syndicate for \$225,000. The new concern will manufacture cotton machinery, automobiles, and a new style of lawn mower. It will also buy a tract of land in the rear of the present plant and will build a mill which is to be an exact duplicate of the present structure. From 300 to 400 hands will be employed at the start.

Elkhart, Ind.—A number of prominent citizens are endeavoring to secure the location of a branch factory of the Maxwell-Briscoe company in this city. No difficulty is being made over the donation of a suitable site, but the company demands an additional investment of \$125,000, which last proposition stands in the way of a final settlement. Warren Hill, H. D. Markel and E. A. Carpenter are among those interested in the concern.

Hartford, Conn.—A number of the stockholders of the Frank H. Harriman Co., of Glastonbury, have petitioned the court to appoint a receiver for the company, but the suit has been dismissed by Judge Case in the Hartford supreme court. There is said to be much factional dissension among the stockholders, and the application alleged mismanagement. The court held that the facts did not sustain the allegations. The company manufactures motors.

AMONG THE MAKERS AND DEALERS

Meeting Postponed—The usual monthly meeting of the A. A. A. and the N. A. A. M. were omitted for August.

Now a Lamp Man—B. B. Hartney, formerly representing the E. J. Willis Co., of New York, is now associated with the sales department of the American Lamp Co., of Detroit.

Needs More Room—The Simms Automobile Co. is building a new garage on Baum street, Pittsburg, opposite the plant of the Standard Automobile Co. It will handle the Locomobile and Lozier.

Good Business—The Central Automobile Co., of Pittsburg, which started in business in February in Center avenue, East End, has sold eighty cars to date. Its agencies are the Moon, Reo and Stoddard-Dayton.

Sprinkle a Reoite—Walter Judson Sprankle has been appointed manager of the Philadelphia agency of the Reo, with salesrooms in the Mint Arcade building and garage at 1627-29 Brandywine street.

Muffler Firm Will Move—H. S. Powell, president and general manager of the Powell Muffler & Timer Co., of Utica, N. Y., is authority for the statement that his concern will remove to some western city in the near future.

Tire Repairers—The Kansas Rubber Co., of Olathe, Kan., of which Ole Hibner is manager, proposes to engage extensively in the heavy repairing of tires. The company manufactures rubber goods now, but does not intend to enter the tire-making field at present.

Winton's Pittsburg Trade—It is rumored that the Winton Motor Carriage Co., of Cleveland, is going to build a big garage in Pittsburg this fall. When Earl Kiser was sent there to take charge of the Winton business last winter the company bought the small garage of the Hiland Automobile Co. on Beatty street, East End, for \$25,800 and is now using it. Kiser has humped things so much that larger quarters next year are a necessity.

Yale Meeting Called—David Ridison, Jr., receiver for the Consolidated Mfg. Co., of Toledo, O., formerly manufacturer of the Yale car and the Yale-California motoreycle, has notified all creditors of the concern that a meeting will be held for the purpose of deciding on the future management of the property. The meeting will be held next Monday.

Bodies Burned—The George N. Pierce Co. was recently a heavy loser as the result of a fire in the plant of Montgomery Brothers & Co. at Court and Wilkeson streets, Buffalo. On the floors of the plant used by the Pierce company were about 250 automobile bodies in various stages of construction. Some of these were entirely finished, while others were in rougher state. Nearly every one of the bodies was dam-

aged more or less by the fire and water. The materials used in the construction of these bodies were also greatly damaged.

Takes on Frayer-Miller—A. R. Bangs, of Boston, Mass., will give up the Franklin agency and assume that of the Frayer-Miller cars for the coming season.

Bradford Promoted—James R. Bradford, New England manager of the Reliance Motor Car Co. in Boston, Mass., has been promoted to the position of sales manager for the same company at Detroit, Mich.

Out for Himself—D. O. Collins, for several years sales manager for the Banker Brothers Co., of Pittsburg, is now in business for himself. He is handling the Columbia and has temporary headquarters with the Fort Pitt Automobile Co., on Baum street, Pittsburg.

Kilgore Auxiliary—The Kilgore Air Cushion Co., of Boston, has opened a shop for the express purpose of attaching the Kilgore air cushions properly to the cars. This auxiliary is at 41½ Columbus avenue. The company's main office is directly across the street.

Does Well With Steamers—The Keystone Automobile Co., of Pittsburg has swung into the August trade with a total of fifty-four White steamers sold this season. Its call for touring cars the past month has been phenomenal and its suburban business has been the best ever.

Kenosha Deal Off—For the present, the establishment of a factory in Kenosha, Wis., by the Kansas City Motor Co. is off. It was not intended to move the Kansas City plant there, but to establish a new one. The reason given is that Kenosha did not come up to the limit set by the manufacturers.

Establishing Tire Agencies—Frank W. Wood of the Healy Leather Tire Co., has been sent out to establish tire agencies in Chicago, Omaha, Denver, Dubuque, Salt Lake, Spokane, Portland, Seattle, Los Angeles, San Francisco, St. Paul and Minneapolis for the Healy tire.

Smoky City Increase—The Fort Pitt Automobile Co., of Pittsburg, has sold eleven Stearns and Olds touring cars and eight Olds trucks since it started in business April 15 on Baum street. Its manager, J. C. Hall, formerly of the Standard Automobile Co., makes the statement that in Pittsburg fully 40 per cent more cars have been sold this season than in 1905.

Franklin to Have Branches—The H. H. Franklin company has decided to open branches in Boston and Chicago. This policy is a radical change, as up to this time the company has had no branch stores. Locations have been secured on Balyston street, Boston, and Michigan avenue, Chicago. After October 1 these

houses will be doing business and will carry a good stock of cars and parts. Tracy Holmes will manage the Chicago branch, it is announced.

Kalamazoo Garage—The Automobile Garage & Repair Co., of Kalamazoo, Mich., has opened a garage at 232 East Kalamazoo avenue. The company soon will be incorporated for \$10,000.

St. Joe Doings—The Schenck Carriage Co., of St. Joseph, Mo., has turned its automobile department over to H. D. Todd & Co., who have opened a general automobile business in St. Joe and who are also western distributors for the Gabriel horn.

Shock Absorbers on Tour—President Hartford of the Hartford Suspension Co., brings out the fact that of the twenty cars in the Glidden tour equipped with shock absorbers sixteen of them had Hartfords and that of the thirteen with clean scores four of them used his wares—the three Pierces and the Columbia. Augustus Post, who tied for the Deming trophy, also used them.

Rushmore's Chicago Branch—The branch store lately opened by the Rushmore Dynamo Works in Chicago carries a large stock of the Rushmore searchlights and generators in all sizes, and fills all orders in its territory at a considerable saving of time to western consumers. It is located over the Oldsmobile agency. An 18-inch electric navy searchlight on the roof is controlled by an automatic time switch which turns it on at dusk and off at midnight. The beam is thrown lengthwise down the street just over the heads of the public, constituting a unique feature of the row. A full line of marine searchlights—electric and acetylene—and the new Rushmore electric locomotive headlight is also carried. The branch is in charge of T. L. Hiles, western sales manager.

Pittsburg's Strength—The automobile companies of Pittsburg have been spending their money freely this year for good buildings. The Hiland Automobile Co. has one of the largest and best appointed garages in Pennsylvania just completed on Center avenue, East End. One square away on Baum street is the large garage of the Fort Pitt Automobile Co. just finished recently. The Atlas Automobile Co. is getting its fireproof garage well along. The Colonial Automobile Co., on Walnut street, has been holding "at home" services in its costly garage for 2 weeks. The Logan Automobile Co. has built a tasty garage in the Bellefield district and L. B. Martin is in his new quarters on Forbes street, Oakland. The Central Automobile Co. has made a fine garage out of a big livery stable on Center avenue, East End. The Simms Automobile Co. is building now near the others. Fully a dozen smaller concerns have secured long leases on big buildings

since last January and have remodeled them at large expense and equipped them with all the facilities found in the modern automobile establishment.

Franklin Boston Branch—The H. H. Franklin Mfg. Co., which in the past has placed the sale of its cars in the hands of a Boston agent for New England, is now about to have a branch of its own in that city.

Pope Takes Stock—The annual invoice caused a part of the Pope-Toledo plant to be partly closed down last week and the week before. The force has again been taken on, and now there are about 1,100 men employed at the factory. The company is working on about twenty-five models of the 1907 type of cars, which will be out soon.

Louisville's New Garage—The Zorn-Strauss Co., of Louisville, will build a new garage on the northeast corner of Second and Broadway, at a cost of \$40,000. It will be 120 feet by 110 feet. A repair shop will be installed in the second story, and also a vulcanizing and retreading plant in charge of Roy E. Warner, an expert from the Fisk factory. The building is to be ready for occupancy November 1.

Battery Company Elects Officers—The stockholders of the Toledo Storage Battery Co., of Toledo, O., held their annual meeting last week. C. A. Byers, who was president of the Ames-Bonner company, of Toledo, was elected president and general manager of the battery concern; J. M. Skinner vice president, and A. C. Ash secretary and treasurer. Messrs. Byers, Skinner, Ash, C. E. B. Lamson, George J. Miller, L. B. Hamilton and L. A. Alexander comprise the board of directors. A new plant will be erected at West Toledo. One building will be two stories high, 100 by 30 feet in size, another will be one story high, and 120 feet long and 20 feet wide, while the third building will be the power house. The new plant will have a capacity for turning out 1,000 batteries a week.

Defines a Garage—New York's municipal explosives commission has made some further suggestions to the acting mayor in the way of amendments to the rules governing garages, which are to be limited to pump houses of no greater capacity than is necessary for the handling of the gasoline and safety cans; that a cement floor shall be provided, that there shall be heavy iron drip pans, and that a cement floor shall be provided. It is said that the acting mayor will approve them. An order has been issued by the street cleaning department directing that the "white wings" consider automobiles left for any length of time unguarded be considered as incumbrances and removed to one of the three municipal encumbrance yards, having been advised by the corporation counsel that they may be so considered.

It is complained that in addition to blocking traffic pools of gasoline and lubricating oil gather and create a nuisance. Several cars have been gathered in and their owners have had to pay \$5 to redeem them.

Franklin Recruit—The Cadillac Automobile Co. has taken the Kansas City agency for the Franklin, formerly held by the Missouri Valley Automobile Co. The latter company now devotes its entire selling effort to the White.

Beat the Strikers—De Dion, Bouton & Co., of France, have obtained from the seventh chamber of the civil tribunal of the department of the Seine, sitting as a court of appeal, in Paris, a judgment reversing the order made by the conseil de prud'hommes for the payment of damages to many men employed by the firm. The case turned on the strike incidents of May 4. On that day the de Dion-Bouton works at Puteaux were invaded by strikers, with the result that work was suspended for some days. The men affected thereupon claimed compensation, and were awarded \$24 each by the conseil des prud'hommes. The higher court has quashed this judgment, holding that the majority of the men committed a breach of contract. In the case of the remainder the court ordered the payment of one week's wages.

French Trade Aroused—As soon as the Paris salon date was fixed, the Olympia show went one better in advancing its date. French comment asks if the Britishers want to cream the milk and get together a good selection of orders before the French showmen have a change, or whether they wish to show they can produce next year's models ahead of France. This cannot be done, it is thought, for the French constructors are working tooth and nail to get out their exhibits for the later date of the Paris show, which date they will only just be able to meet. Recently, when it was suggested that the French date should be advanced a bit, constructors were up in arms all round against it as a thing impossible to realize. But everyone is determined to put their greatest unknown efforts into the Paris show. The Frenchman has not yet said his last word, it is asserted, and will be heard from soon.

Ajax Guaranty—The Ajax Standard Rubber Co., of New York, maker of Ajax tires, through its president, Horace De Lissner, announces that it will guarantee its tires for 5,000 miles under the following conditions: Each tire will be numbered and a regular form of guaranty given with it. It is not alone a guaranty against defective material and construction, but assures the buyer of getting at least 5,000 miles from each tire, or it will be replaced or repaired. The guaranty covers blowouts, blistering and rim-cutting for a period of 6 months. Where replacement is made there is a mileage

tire, which is conservatively estimated at 25 miles a day. This company was organized by concerns comprising the American Motor Car Manufacturers' Association.

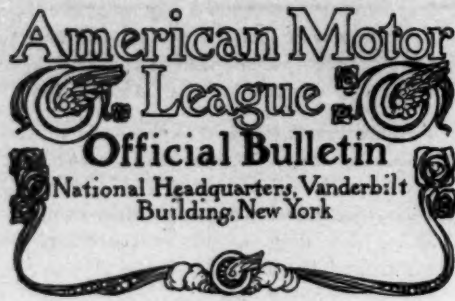
Orders Six-Cylinder Pierces—Ten of the big six-cylinder Pierce cars have been placed as the allotment of J. W. Maguire, of Boston, Mass. Seven of them have already been disposed of to customers in and around Boston.

Syracuse Change—Harry E. Marvel has resigned his position as manager of the Amos-Pierce company's garage in Syracuse and has been succeeded by W. H. Bissell, formerly with the Syracuse Motor Co.

Forced Out by Ill Health—R. D. Alliger, Jr., of Syracuse, has been forced by ill health to retire from the firm of Brandeburg Brothers & Alliger, and now will seek to regain his lost health. Mr. Alliger spent last winter in the south, but even that mild clime failed to help him.

Parts Show—A. M. Andrews, 184 LaSalle street, is secretary of the company promoting a parts and accessories show in the First regiment armory, Chicago. The dates set are September 22-29. He announces he has the following exhibitors promised at the present time: Leon Rubay, American & British Mfg. Co., S. K. Bishop Co., Chicago Battery Co., Crouse-Hinds Co., Chicago Flexible Shaft Co., Chicago Pneumatic Tool Co., Dixon Graphite Co., Electric Storage Battery Co., Franco-American Auto & Supply Co., Heinze Electrical Co., Hutchinson Electrical Horn Co., Lukenheimer Co., Midvale Steel Co., Pantasote Co., Stevens & Co., Speed Changing Pulley Co., Sherwin-Williams Co., Turner Brass Works, Steel Ball Co. This will be the first show ever given exclusively for this branch of the industry.

What Quakers Are Doing—Philadelphia tradesmen, these 'tween-seasons days, are either laying pipe for future business or are whiling the time away and storing up vitality for the strenuous days to come. W. F. Smith, manager of the local Rambler branch, left town for the factory at Kenosha, Wis., last Monday, to fix up a plan of campaign for 1906-07. Manager G. Hilton Gantert, of the Motor Shop, Royal Tourist and Oldsmobile, is rusticating at Island Heights. Hugh L. Willoughby, of the same concern, has just returned from Narragansett Pier. Archie Hughes, of the firm of Foss & Hughes, is back at his desk after his clean-score performance with his Pierce car in the Glidden tour. Manager I. J. Morse, of the Locomobile branch, is at the factory in Bridgeport, Conn. A. E. Maltby, head of the local Winton branch and president of the Philadelphia Automobile Trade Association, is resting in the Adirondacks. E. H. Godshalk, president of the Keystone Motor Car Co., Autocar and Packard, accompanied by his wife, is touring in the Pennsylvania mountains.



WORCESTER TO BOSTON

This map has been made with much care and is believed to be the best of its kind. It is by no means a long run from Worcester to Boston, but there are many optional routes between the two cities and for the convenience of the tourist the A. M. L. has selected the best, and they are shown by heavy lines on the official map. Moreover, they are correctly shown. Every important angle, turn or curve is faithfully drawn and the short spurs running out from the main routes show the location and direction of branch roads which, by the aid of these marks, the tourist may easily avoid. Branch roads are shown to South Shrewsbury, Wessonville, Fayville, New Boston, Saxonville, Cochrane, West Newton, Newtonville, Newton, Waverly and Belmont, although the five places last named are on the lines of busy thoroughfares and are often regarded as being on the main route running into Boston from westward points. From Waltham eastward four routes into Boston are shown by heavy lines and several minor routes are shown by other lines having important connections.

THE TOP OF A MAP

Now and then somebody inquires "Why don't you have the north point at the top of your maps just like the maps in the geography?" Answer: Because these maps are used for a different purpose. We study maps in the geography to find the relative location of different places. When a motorist starts on a journey his route, like his future, is mostly ahead of him. So it is in these maps and so it is in every route map that is made right. A man who follows a path cares little for the points of a compass if he knows the path leads to the place where he seeks to go. In the use of these maps the tourist may at any time ascertain the direction of his course by noting the "north point," which is always printed on the map.

FREE TO A. M. L. MEMBERS

These maps are paid for by league members and will be given to league members. The more maps the more members and vice versa. There are many reasons why every motorist should be a member of the A. M. L. and these will be sent by the secretary on request. No initiation fee; dues \$2 per year. Such a proposition surely should be worth investigating by any motorist at all interested in the sport. Address American Motor League, Vanderbilt building, New York, for additional information.

